

TECHNOLOGY DEPT

MOTOR AGE



JUNE 1946

BRAILEY

30
40

SOFT PRESSURE DOES IT!

Softly, gently, Steel-Vent contacts the cylinder walls—always just the right amount of pressure—always a long-life result.

That's the significance of *Soft Pressure*, as employed in the Hastings Steel-Vent. It's what makes this ring ideal in rebores, re-sleeves and extreme tapers.

HASTINGS MANUFACTURING COMPANY • HASTINGS, MICH.

Hastings Ltd., Toronto

SOFT PRESSURE DOES IT —IN REBORES, TOO

100% sold on Steel-Vents, says this automotive parts company: "We have handled Hastings piston rings since 1937 and are convinced 100% that Steel-Vents are working completely satisfactory in our rebores as well as re-ring jobs. We recommend and install these rings for all our fleet and industrial accounts for all their rebores and re-ring jobs."



HASTINGS STEEL-VENT PISTON RINGS

U. S. PAT. 2,148,997.



TOUGH ON OIL-PUMPING GENTLE ON CYLINDER WALLS



18 of the 20 makes of motor cars embody essential parts made by Borg-Warner

**TRANSMISSIONS
TIMING CHAINS
OVERDRIVES
SYNCHRONIZERS
CLUTCHES**

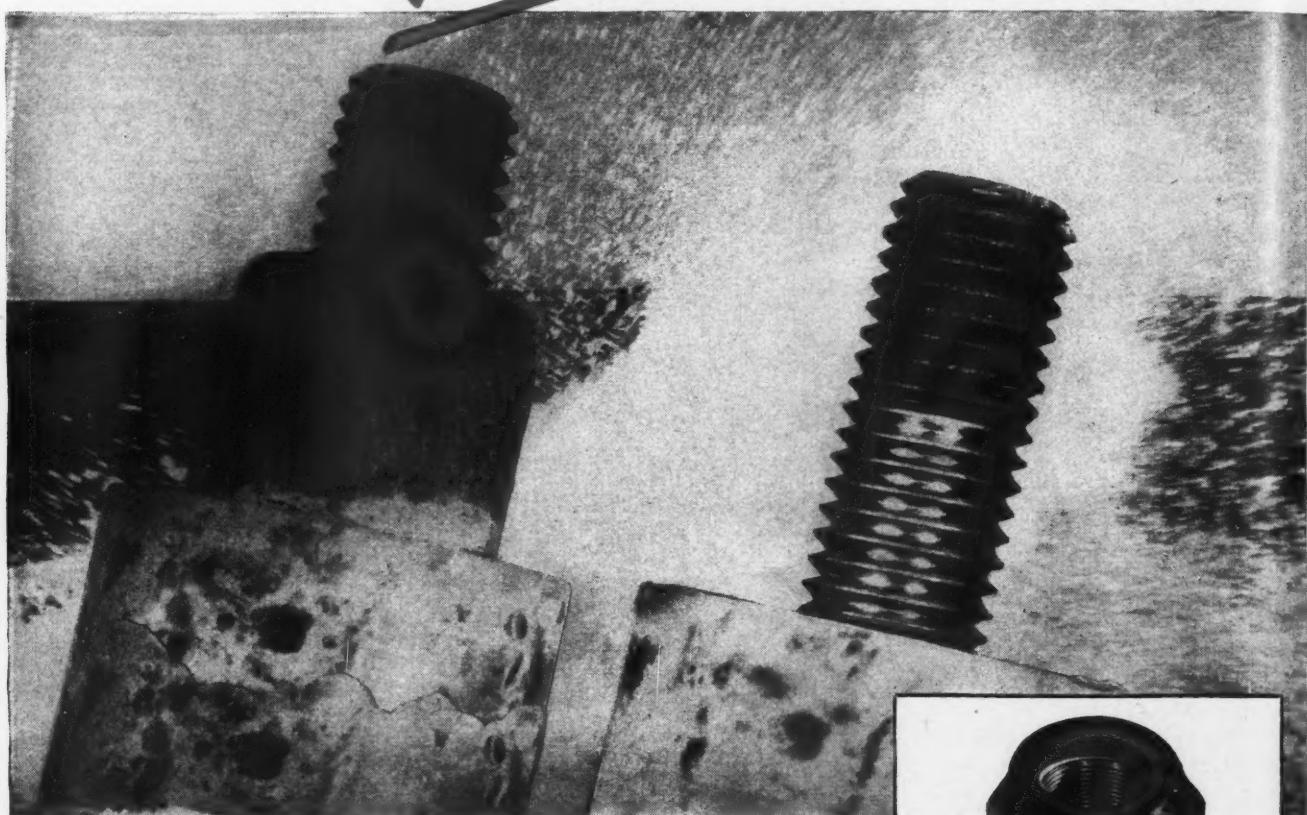
**UNIVERSAL JOINTS AND
DRIVE SHAFTS
CARBURETORS
RADIATORS
TAPERED WHEEL DISCS**



Executive Offices, Chicago. These units form Borg-Warner: BORG & BECK • BORG-WARNER INTERNATIONAL
BORG-WARNER SERVICE PARTS • B-W SUPERCHARGERS, INC. • CALUMET STEEL • DETROIT GEAR • DETROIT VAPOR
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Prevent Corrosion

**SELF-SEALING TO
OF BOLT THREADS**



*—with the Red Elastic Collar that
protects the threads against Liquid Seepage*

Moisture cannot penetrate the Red Elastic Collar. Study the heavily corroded bolt and nut assembly in the unretouched test photograph. It has been subjected to the equivalent of three years' exposure to moisture . . . to industrial smoke and grime . . . to climatic change. Study the same bolt with the nut removed. Look at the bolt threads that were inside the Elastic Stop Nut. They're as good as new! Why? Because the Red Elastic Collar protects them permanently against Liquid Seepage—and

Corrosion. Elastic Stop Nuts are easily removed because they cannot 'rust solid'. They prevent fasteners from failing because of corrosion weakened threads.

Here's a challenge: Send us complete details of your toughest bolted trouble spot. We'll supply test nuts—FREE, in experimental quantities. For further information or literature address: Elastic Stop Nut Corporation of America, Union,

New Jersey. Representatives and Agents are located in many principal cities.



The RED ELASTIC COLLAR
—denoting an ESNA product—

. . . is threadless and permanently elastic. Every bolt—regardless of commercial tolerances—impresses (does not cut) its full thread contact in the Red Elastic Collar. This threading action produces a compressive, radial-reactive pressure against both the top and bottom sides of the bolt threads . . . insures a permanently tight, full contact between the bolt and nut threads . . . and makes all Elastic Stop Nuts self-sealing against Liquid Seepage.

As a result, all Elastic Stop Nuts protect permanently against thread corrosion.

ELASTIC STOP NUTS



INTERNAL
WRENCHING



ANCHOR



INSTRUMENT
MOUNTING



SPLINE



CLINCH



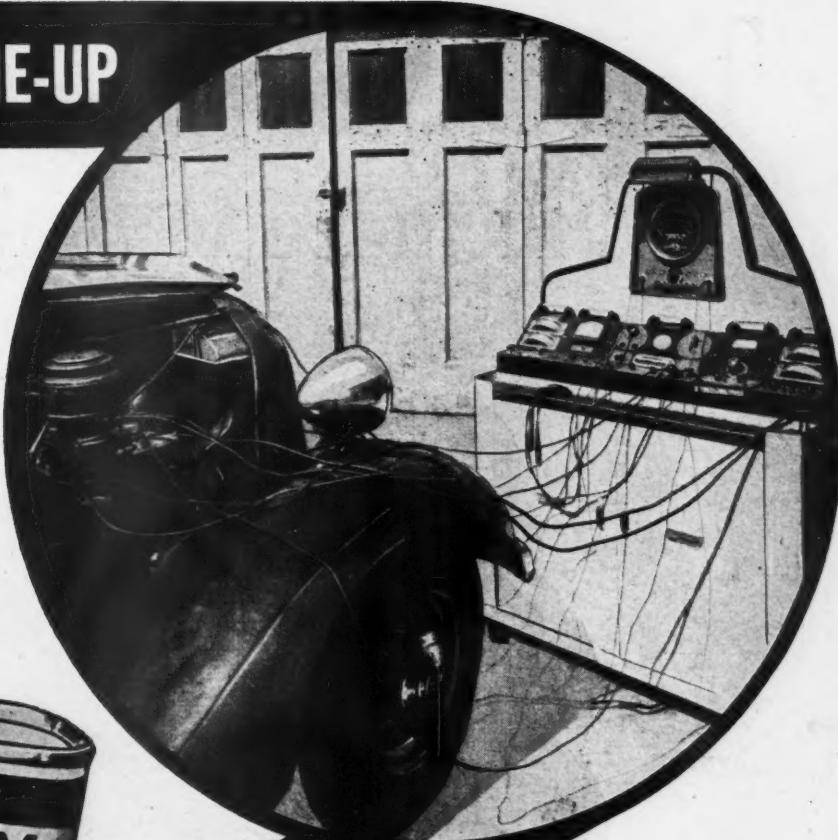
GANG
CHANNEL



CAP

PRODUCTS OF: ELASTIC STOP NUT CORPORATION OF AMERICA

BEFORE YOU TUNE-UP



... USE THIS

FIRST, add PERMATEX TOON-OYL to crankcase oil to dissolve sludge and gum binders that interfere with the smooth operation of valves, piston rings, oil lines and oil screens.

THEN you'll have a CLEAN ENGINE... ready for accurate mechanical adjustments!

PERMATEX COMPANY, INC., BROOKLYN 29, N. Y.



ADD 1 QUART OF
PERMATEX
TOON-OYL TO 5
OR 6 QUARTS OF
ANY TYPE OF
MOTOR OIL IN THE
CRANKCASE

Texaco Dealers are included in their plans



AMERICA'S MOTORISTS are making plans as never before to go places and see things. Courteous, efficient service and outstanding petroleum products plus Texaco's extensive advertising in print and over the air have made Texaco Dealers an important part of tourists' plans.

That's why, when motorists are

planning to travel, they see their Texaco Dealer first — for Texaco Touring Service — for pre-trip lubrication and check-ups — and to "fill 'er up" with Texaco Sky Chief or Fire-Chief gasoline.

And on the highways — they stop at the familiar Texaco sign — the sign that means business — and profits for Texaco Dealers.

THE TEXAS COMPANY



**A Great Line-up
for
TEXACO DEALERS**

FIRE-CHIEF and Sky Chief GASOLINES
TEXACO and HAVOLINE MOTOR OILS • MARFAK
CHASSIS LUBRICATION • REGISTERED REST ROOMS

TUNE IN... Texaco Star Theatre every Sunday night starring James Melton, with his guest, Ed Wynn. See newspapers for time and stations.

STOP THE COMBATS

(Comebacks)

- INSTALL MOOG X-PLUS



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TODAY

MOOG

X-PLUS PISTON RINGS

(U. S. Pat. No. 1,771,198)

A different type ring
for each groove — each
ring has its job and does
it—delivers FULL POWER.

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BUY-WORD FOR SPRINGS
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It's a fact, repairmen who know will tell you, that the Moog X-Plus Piston Ring has the features they themselves would include if they designed their own Piston Rings. Flexibility, battleship oil ports, no-hammer-handle installation, quick-seating, etc., all go to insure FULL POWER performance, new-day motor thrills and stop costly comebacks.

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write us now.

FIRST BY FAR WITH A POSTWAR CAR

New 1947 Studebaker
Champion and Commander

AN ACHIEVEMENT
MADE POSSIBLE BY
THE TEAMWORK AND
COMPETENCE OF THE
INDUSTRY'S FINEST
WORKING FORCE

ANOTHER
STUDEBAKER "FIRST" ...
PERHAPS THE MOST IMPOR-
TANT "FIRST" IN ITS LONG
LIST OF PIONEERING
ACCOMPLISHMENTS



Solid as a STONE WALL...the Delco-Remy Line

ORIGINAL-EQUIPMENT PARTS

You build solidly and profitably—now and for the future—when you make the Delco-Remy line the foundation of your electrical service business.

Delco-Remy is the leading *original-equipment* line... used on more cars, trucks and buses than any other line of electrical units. Year after year millions of new vehicles will leave the assembly lines Delco-Remy-equipped. You can depend on a strong, solid, continuing demand for Delco-Remy service and maintenance.

Moreover, the Delco-Remy line is solid all the way through. When you need little-used parts for older models, they are available to you. And you can always have the parts and service information necessary to handle any electrical repair job for any Delco-Remy-equipped vehicle.

It's only natural that the leader in the field gives you the most. See your United Motors Service distributor about the Delco-Remy "stone-wall" line.

DELCO-REMY ELECTRICAL EQUIPMENT FOR AIRCRAFT

Delco-Remy, long the leader in automotive electrical equipment, is now building electrical equipment for aircraft. Delco-Remy will make available the same strong merchandising and service support in this field as it has in the automotive field.

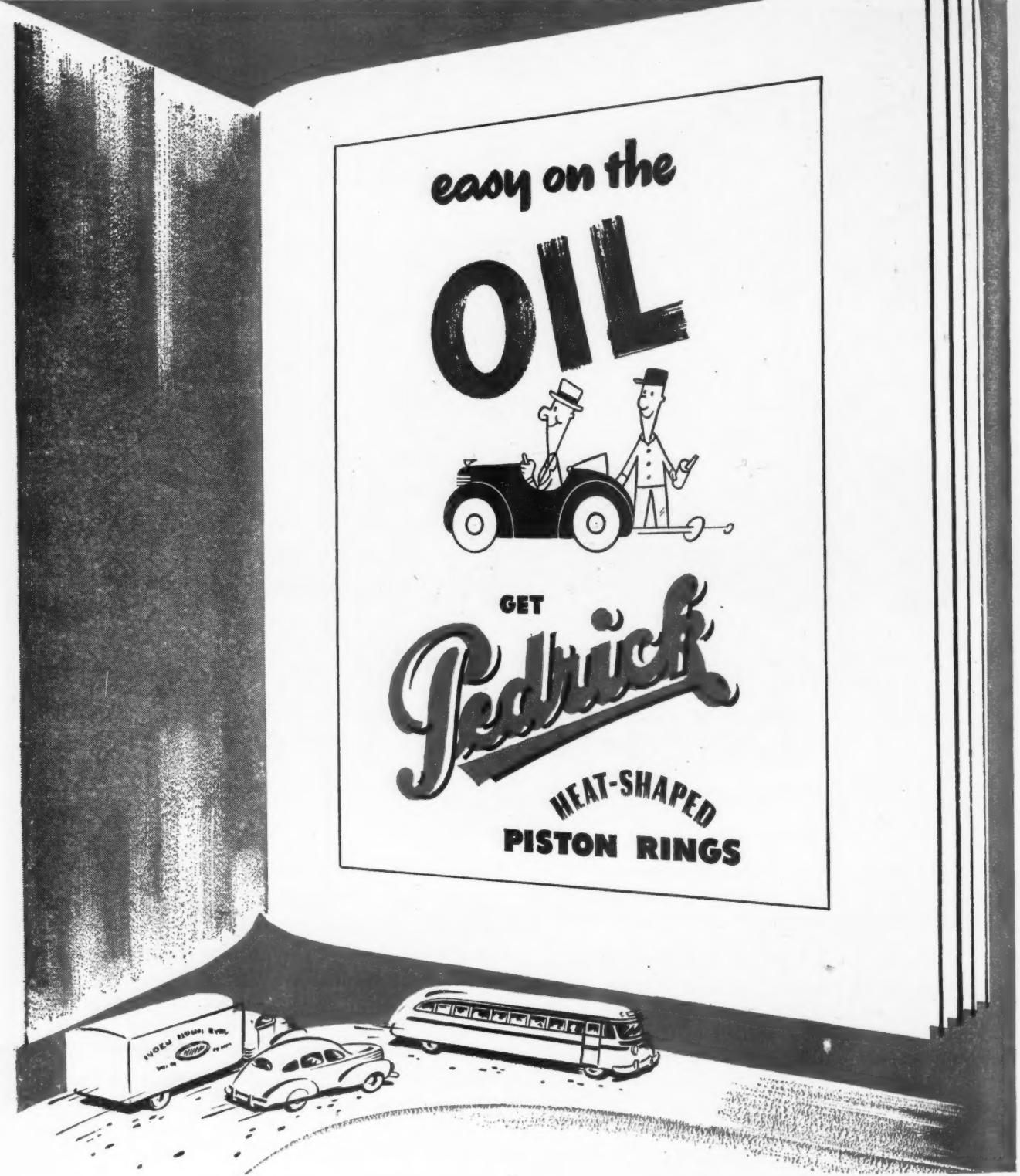


A UNITED MOTORS LINE

Delco-Remy original-equipment parts are available through leading independent distributors throughout the United States.

Delco-Remy
DIVISION, GENERAL MOTORS CORPORATION
ANDERSON, INDIANA

WHEREVER WHEELS TURN OR PROPELLERS SPIN



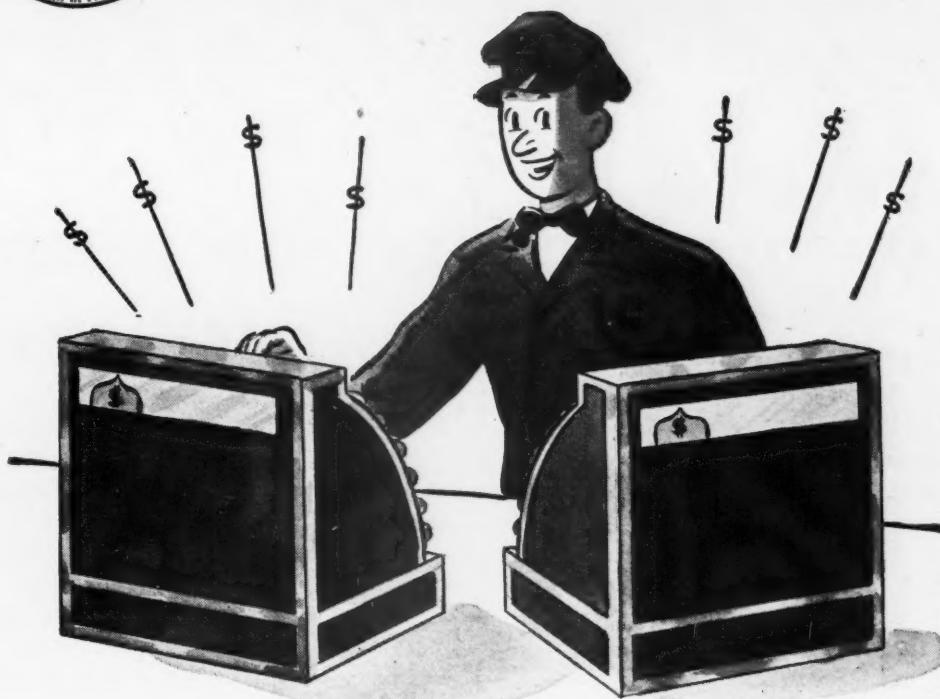
For contented customers . . . for motorists who will come back smiling

... be sure to recondition with Pedrick "Heat-Shaped" rings. Only PEDRICK rings are "Heat-Shaped." This is a patented process that delivers greater oil and gas economy, gives engines a new lease on life. Pedrick rings come in guaranteed Engineered Sets for each specific make and model of engine. Wilkening Manufacturing Co., Philadelphia 42, Pa. In Canada: Wilkening Manufacturing Co. (Canada) Ltd., Toronto.

New



Increases Profits 2 Ways



1. CUTS YOUR CAR WASHING TIME!

Ethyl Cleaner, a revolutionary new soapless detergent made from petroleum, makes your wash-rack work a quick, easy job. It's better and faster than any soap. Just put 1½ tablespoons of Ethyl Cleaner in a pail and add a gallon of water (any kind of water: hot, cold, hard, or soft) . . . wash . . . rinse . . . that's all! No need to wipe dry. Leaves the car sparkling, with no streaks. Cleans everything . . . body, glass, chrome, plastics, canvas tops and tires. This different cleaner simply loosens dirt and grease and floats it away. Non-inflammable. Contains no caustics or abrasives to mar or dull car finish.

2. GIVES YOU A 40% MARGIN ON RESALE!

Although Ethyl Cleaner was introduced to clean cars faster, housewives soon discovered it better for household cleaning jobs, too. Here's an *impulse item* which will sell quickly . . . at a 40% margin. Ethyl Cleaner is now distributed in the Northeast, backed by powerful advertising. Watch for it. Contact your jobber, or write Ethyl Specialties Corp., 21 West Street, New York, N. Y.

A PRODUCT OF ETHYL CORPORATION
DISTRIBUTED BY ETHYL SPECIALTIES CORPORATION



These prices protected by fair trade agreements			
	Your Cost Per Bottle	Your Fair Trade Selling Price	Your Protected Profit
32-oz. size	\$0.72	\$1.20	\$0.48
24-oz. size	0.60	1.00	0.40
16-oz. size	0.45	0.75	0.30
6-oz. size	0.21	0.35	0.14

The Makers of WALKER "Individually Tuned" SILENCERS Announce

A New Super-Fast RUST-BUSTER

DEVELOPED ESPECIALLY FOR REMOVING RUSTY, CORRODED EXHAUST SYSTEMS

Super-Kwick . . . FORMULA 26 WITH KORIUM was developed by Walker in cooperation with one of the nation's leading research organizations. It approaches the problem of "rust busting" from a new and unique angle. In "Super-Kwick" there is brought together a new combination of costly ingredients noted for their unusual creeping ability and rust freeing action—to which has been added a new, special, rare ingredient, KORIUM, which increases, even further, its rust busting speed and efficiency.

Super-Kwick acts fast—so fast it almost seems alive. It leaves behind a residual deposit that holds

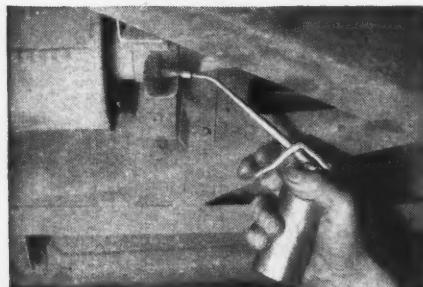
the rust for hours in a soft, graphite-like form. It creeps to an amazing depth to do its work thoroughly and effectively. It is simple and pleasant to use and contains no harmful acids.

Make the use of Super-Kwick a standard operation in your exhaust system service. You will find it saves you time and makes more money for you. It's new . . . It's different . . . It's effective. It will enable you to establish a new standard of speed and efficiency. It makes exhaust system service a "pleasure" . . . Keep Super-Kwick handy and your muffler removing troubles are over. Ask your Walker Jobber Salesman.



"**Super-Kwick permits the removal of rusty exhaust systems without the use of heat, hammers, chisels, saws or other tools except necessary wrenches. It cuts time up to 50% . . .**"

. . . SAYS BERT ELLIS, WALKER RESEARCH ENGINEER



Starting at rear end of system, apply Super-Kwick liberally to all nuts, bolts hangers, clamps, brackets—and to both front and rear muffler and pipe connections.



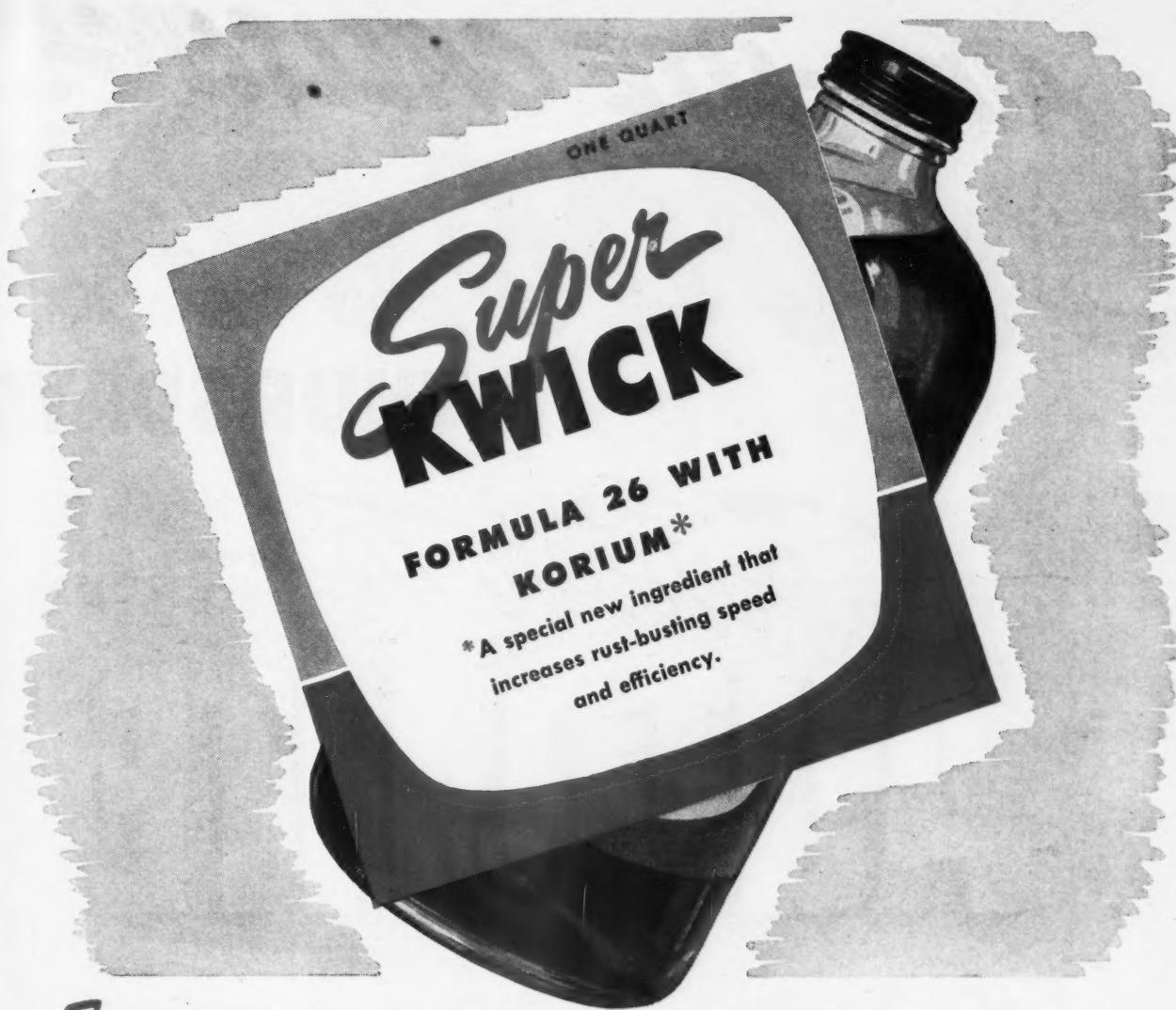
Again starting at the rear, remove all necessary hangers, brackets and rear muffler clamp so the tail pipe is free. Then give muffler and pipe connections a second shot of Super-Kwick.



Take a firm grip on pipe and with "up-and-down and sidewise-and-outward movements," work pipe free of muffler. Remove muffler from exhaust pipe in same manner.

IF YOU WANT TO LICK IT...

WALKER MANUFACTURING COMPANY OF WISCONSIN • RACINE, WISCONSIN



Frees Rusted Connections between Mufflers and Pipes

Frees Rusted Bolts and Nuts on Clamps, Hangers, Brackets

Makes Exhaust System Service Faster . . . Easier . . . More Profitable

SOME TYPICAL SUPER-KWICK VICTIMS



Here is a typical "Super-Kwick" job. This Plymouth muffler was removed with no other tools except a wrench after 20,000 miles of service. A thorough treatment of Super-Kwick "busted the rust."



This "Super-Kwick" victim had been on the job for over 30,000 miles. The amazing creeping and rust busting ability of Super-Kwick permitted its removal without hammers or chisels.



This rusted, corroded muffler was a real test of Super-Kwick's rust busting ability. It had been on the vehicle for 39,400 miles—but it "yielded to the Super-Kwick treatment."

SUPER KWICK IT!

ALSO MAKERS OF HYDRAULIC AND MECHANICAL JACKS AND ELECTRIC LIFTS

AUTO-LITE CALLING...
30,000,000
THURSDAYS

Switch to —

AUTO-LITE WIRE AND CABLE

Switch to —

**AUTO-LITE
WIRE
AND
CABLE**

*Auto-Lite
Steelductor
IGNITION CABLE SET*

*Prevents
Ruinous Corrosion
like this...*

THE ORIGINAL

**AUTO-LITE
MANUFACTURING**

Radio Homes

9:00 P.M. - 149 CBS STATIONS

DICK HAYMES

GORDON JENKINS

MARTIN:

Now! Two famous Auto-Lite products are available for your car; the best battery cable money can buy!

VOICE: The best spark plug wire -- the stainless steel

MARTIN: (THROUGH ECHO CHAMBER) Switch to Auto-Lite!

One! Auto-Lite Steelductor Spark Plug Wire -- the stainless steel

spark plug wire used on the majority of fighting planes during the

war! Don't let faulty wiring rob you of power and mileage!

VOICE: (THROUGH ECHO CHAMBER) Switch to Auto-Lite!

MARTIN: Two! Another great Auto-Lite product! Auto-Lite Battery Cables

cable for year-in year-out driving!

VOICE: (THROUGH ECHO CHAMBER) Switch to Auto-Lite!

MARTIN: Yes, switch to Auto-Lite Steelductor Spark Plug Wire and Auto-Lite

Battery Cables with the new anti-corrode terminals. For the best

spark plug wire ... for the best battery cable money can buy ...

VOICE: (THROUGH ECHO CHAMBER) Switch to Auto-Lite!

MARTIN: See your friendly Auto-Lite Dealer and have him check the wire and

cable in your car. Remember -- the name Auto-Lite means Spark

Plugs (CHORD) Auto-Lite means Batteries (CHORD) Auto-Lite means

ignition systems (CHORD) Auto-Lite means the lifeline of your car.

(THEME)

This announcement is made at regular intervals on the Dick Haymes Radio Show

EQUIPMENT LINE

HELEN FORREST

"Our

SCHILDMEIER
SEAL LINE

IS BRINGING US SHOP
TRAFFIC WE WOULDN'T
HAVE OTHERWISE ENJOYED!"

Says-

MR. W. H. SHEPLER
NU-TRED TIRE COMPANY
PEORIA, ILLINOIS

IT'S FASTER ---

Owners report "70-100 wheels per day." Actually it takes less time to balance wheels than to dismount and remount them.

IT'S ACCURATE ---

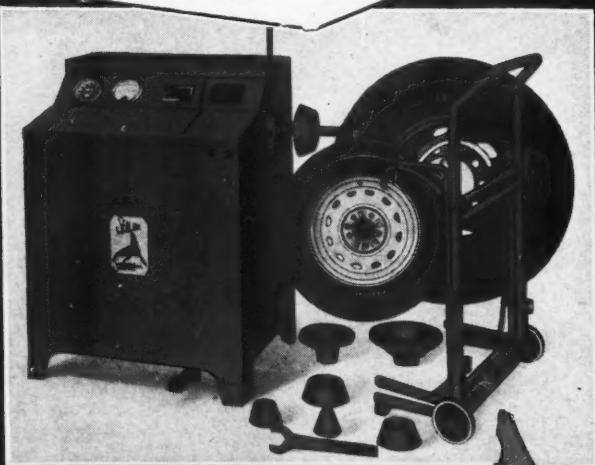
No road testing. A glance at the instruments shows you the proper amount of weight needed for speeds up to 100 M.P.H. No jobs to do over.

IT'S FLEXIBLE ---

No jobs to turn down. Balances all truck, bus and passenger car wheels.

IT'S SIMPLE ---

Anyone operating this machine can do precision balancing.



REMEMBER SEAL LINE
The Fastest Thing on Wheels
Write...

H. C. SCHILDMEIER CO.
312 N. SENATE AVE.
INDIANAPOLIS 2, INDIANA

MOTOR AGE

With Which Is Combined AUTOMOBILE TRADE JOURNAL

FOR AUTOMOTIVE SERVICEMEN

Vol. LXV, No. 7

June, 1946

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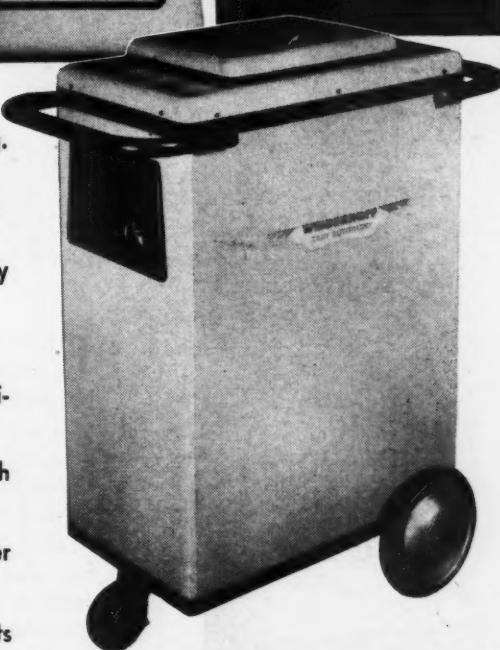
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FEATURING
BUILT-IN
FACILITIES
FOR
CYCLING OF
BATTERY
AUTOMATICALLY



- For efficient, reliable, safe and fast "while-you-wait" battery charging.
- Gives customers a special service being demanded more and more.
- Saves shop time. Batteries are charged right in the car.
- Investment and losses in rental batteries greatly reduced and practically eliminated.
- Battery can be charged while other services are performed.
- Easy to use. Start of charge comes in automatically with visual indication by red and green lights.
- Equipped with No. 0 Welding Cable. Normal voltage for correct finish rates. Eliminates overheating of charger and battery.
- An ideal point-of-sales machine for new batteries leading to a bigger and more profitable battery and electrical department.
- Builds good will. Gets a customer in a hurry on his way quickly. Attracts new customers. Gives regular customers a better break.
- Gives you those extra service dollars now rolling past your doors.

Write for information on the Model 100 Charger.

ENGINE ANALYZERS • BATTERY CHARGERS • MAGNETO TESTERS

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WEIDENHOFF
INC.
CHICAGO 24, ILLINOIS

TEST BENCHES • ELECTRICAL TESTING AND SERVICE EQUIPMENT

JUNE, 1946 When writing to advertisers please mention *Motor Age*

Easily rolled between closely parked motor vehicles. Operator has right before him all the controls, meters, signal lights and full instructions on the inside of protecting lid. With the lid down the meter and controls are protected.



For low friction, too...



NOT 2...



NOT 6...



but 26 basic designs

OF SEALED POWER PISTON RINGS



Individually
Engineered

Keep Your Savings Bonds!
Get \$4 for \$3!

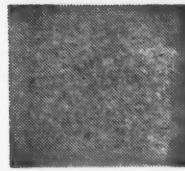
FRICITION wastes power. Low friction, like oil control, blow-by control, and minimum wear, is one of the four qualifications for balanced performance in piston ring installations. You get *all four* when you use Sealed Power Individually Engineered Ring Sets. Each set is selected from twenty-six (26) basic designs of piston rings. Whatever the make, model, or cylinder wear condition of an engine, there is a Sealed Power Set specifically engineered to do the best possible job. Sealed Power has been refining these sets seven years, has been producing rings for car, truck and engine manufacturers 35 years. For best results, re-power with Sealed Power motor parts. Sold by leading distributors. Sealed Power Corporation, Muskegon, Michigan and Stratford, Ontario.

Piston Rings, Pistons, Cylinder Sleeves, Piston Pins, Valves, Water Pumps, Bolts, Bushings, Tie Rods, Front End Parts.

SEALED POWER PISTON RINGS

BEST IN NEW CARS! ★ BEST IN OLD CARS!

J U N E 1 9 4 6



NEWS BULLETIN



★ Ford officials who were forced to shut down assembly lines early in May are now optimistic regarding the resumption of operations by approximately June 24.

★ Production of 1947 models has been resumed at South Bend as 9000 workers return to work at Studebaker. The stoppage was caused by railroad freight embargo.

★ U.A.W. workers at Chrysler are already agitating for another raise. The executive board of the Union is expected to oppose it - at least for the immediate present.

★ U.A.W.'s main objective at the moment is to make the last 18½ cent wage boost general throughout the industry. The Union states that many parts companies have not yet granted this raise.

★ Strong possibility that U.S. may take over strike-bound J. I. Case and Allis-Chalmers.

★ Pontiac reports great progress in cutting down back log of parts orders. Present shipping rate is twice as great as any previous record.

★ Financial reports of car manufacturers for the first quarter show all companies are running at huge operating losses.

★ Plans for a 50 million engineering center are announced by Henry Ford to conduct research for new cars.

★ Chevrolet produced 58,800 cars and trucks in May compared to 47,000 in April.

★ Walter Ruether, UAW-CIO president, announces that auto price increases will be taken to court, if necessary, to get redress for the consumer.

★ In Detroit, Unions are now picketing homes because the owner and occupant did his own painting.

★ Motor Age readers who are making building alterations or new buildings will find that a shortage of nails will be a major factor in delaying completion of their project.

★ Full production of steel is threatened by lack of scrap metal, but of greater importance, are the OPA regulations which limit price and consequently production on certain grades of steel.



Little Encouragement For Car Dealers

IN spite of the settlement of the soft coal and railroad strikes, there is little to encourage car dealers who are waiting for cars so that they can fill orders which have been standing on their books for months and in some instances, since before V-J Day. Car manufacturers are still operating on a day-to-day basis with production ham-strung by strikes in suppliers' plants throughout the industry. At the time of going to press, still production had risen to only 50 per cent of capacity and there were upwards of 150 strikes tying up suppliers' production.

Increasing the industry's pessimism is the loss in earnings of the workers participating in these strikes, which will certainly tend to reduce both car sales and maintenance. Meanwhile dealers and servicemen speaking with increased vehemence of the necessity of laws, stronger than the Case Bill, which would control labor leaders and guarantee manufacturers the right to uninterrupted production.

Profits Not Likely Despite Price Increase

DESPITE the increases of from 4 to 8 per cent granted by OPA for new automobile prices, the manufacturers do not stand to make any money at present levels of production. Most companies are wary about comment on this, but a few spokesmen have indicated that their companies cannot possibly break even at current erratic production figures, and that it will be at least

several weeks before the supply situation will be such that cars can be built in volume that will show a profit. At best, the new prices will cut down the substantial operating losses the manufacturers have incurred during the first two quarters of this year. When prices were given the latest boost, some comment developed about whether some buyers might be forced out of the market. A check among Detroit dealers shows no significant indication that demand has tapered off because of higher prices.

New Wage Crisis May Loom This Year

WHILE the current labor trouble holding up automobile production is centered largely in the supplier industries, some of the more astute labor observers are predicting that if prices continue their upward trend, the automobile manufacturers may face a new series of wage crisis late this year. Whether or not General Motors will suffer in this respect depends entirely on whether the UAW-CIO chooses to honor its contract, which calls for no new wage demands until next March 31. Walter Reuther, union president, has already threatened to reopen the wage issue if

The first postwar Memorial Day Speed-way Classic held at Indianapolis drew a record-breaking crowd, and catapulted a new winner into fame. George Robson, of California, Robson won the race with an average speed of 114.820 MPH. Jimmie Jackson came in 43 seconds behind the winner. For a complete account of this thrilling event, read the detailed article on pages 20, 21 and 22 of this issue.

What Strikes Have Done to Car Production

Week	Car Production 1946	Car Production 1941
May 4.....	67,060	130,610
May 11.....	71,355	132,380
May 16.....	48,565	127,265
May 25.....	53,020	133,560
June 1.....	32,480	106,395

Above data from Ward's Automotive Reports.

prices continue upward. However, the ultimate disposal of the Case bill, which makes union liable to suit for losses incurred by violation of contract, may have some bearing on future developments in this respect.

How High Is Up?

FOR the third time OPA has boosted car prices so that today prices are considerably above 1942 levels, and just how long these present ceilings will last, is anyone's guess, for under today's conditions manufacturers are operating under rigidly controlled prices while their costs, particularly labor, have been rising by leaps and bounds. Unfortunately there are still many individuals who believe that wages in a large industry can be increased without affecting the price of the end product. Such sophomoric thinking is what has placed the world in its present chaotic condition. And the inflationary spiral which made its initial turn in 1933 when F.D.R. went off the Gold Standard, is becoming tighter and tighter and as long as left wing politicians, and not statesmen remain in control there is little chance of avoiding a complete debacle.

SLANTS ON THE NEWS



A.F.L. Attempting to Organize Auto Salesmen

AN example of what car dealers have ahead of them can be had by studying the dealer-labor situation in Detroit where the A.F.L. Teamsters' Union is attempting to organize automobile salesmen through blanket dealer contracts which impose arbitrary conditions governing compensation and working conditions. The contracts would force dealers to hire salesmen even though the dealer had previously done all of his own selling. This is a serious situation of the utmost importance to car dealers and is made possible by such stupid laws as the Wagner Labor Relations Act.

Such laws should be repealed and unions should be subject to anti-racketeering and anti-monopolistic laws as are citizens and corporations. In addition, unions should be required to publish annual audits and be subject to other control methods.

The initial demands of the union as shown in the contract, show how far a powerful monopoly group, backed by a tough close-knit organization and using threats of secondary boycott, dares to go under present labor laws. Details of the contract were closely guarded but MOTOR AGE was able to obtain the following basic points.

Certain standard provisions call for a closed shop, maintenance of membership (discharge of salesmen not in good union standing), checkoff, committeemen, seniority, grievance procedure, hiring and firing for cause, anti-strike pledge and anti-lockout provision.

No Sunday or holiday work is permitted.

The quota of house deals is set at 33 per cent, with the management to pay commissions to union salesmen on a prorata basis on the remaining two-thirds of the house sales. This is particularly bitter medicine for small dealers who normally do not hire salesmen, since they would be required to either hire salesmen they do not need or pay the commission directly into the union till.

Commissions on new cars are not to be less than 5 per cent, with a minimum of \$10 on used cars. Minimum salary for both new and used car salesmen shall be \$65 a week, with \$65 pay given as vacation pay during an off week. In a supplemental provision to the original demands, a delivery quota is set up whereby seniority salesmen share in orders placed before the contract goes into effect, regardless of whether they participated in the sale or not. Where only one salesman is employed, he receives 25 per cent of the backlog orders; in dealerships where two salesmen are employed, they get 50 per cent, and those with three or more salesmen, 66.7 per cent. Dealers with no salesmen are exempt from the provision.

With the agility of a magician with "now you see it, now you don't", OPA has mislead the car owning public and distorted facts to the disadvantage of the car dealer. Using Chilton data, NADA's president W. L. Mallon leveled numerous charges at OPA when testifying before the Senate Banking and Currency Committee recently. Read the fact-packed article on page 23 of this month's Motor Age.

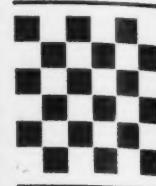
The contract does not cover sales managers, but specifically states that the company recognizes their right to join the union or remain members. It is felt that the union will make an effort to sign up sales managers, since that would give it access to the dealer's financial records and other information useful for bargaining purposes.

MOTOR AGE readers are urged to study these points carefully and realize that unless they act now that they will soon be in the same position as the mine owners are under Lewis.

Strong Competitive Selling to Return

WHILE strikes continue to throttle production, there are increasing indications that the tremendous market for new cars which everyone predicted, may wash out completely, or at best, be only a small fraction of millions that had been forecast. For example, many dealers, in checking the prospects who have placed orders for new cars, find that only one in four is still interested in purchasing a car. Part of the difficulty results from the practice of car owners placing orders with all dealers having cars in the desired price range, with the thought of accepting only the car that is delivered first.

Certainly the economic and general business picture is the most complicated and unpredictable in the history of the world, and auto dealers should not be beguiled by present orders on their books, nor overlook the necessity of training their salesmen in strong competitive selling.



Winner of the 1946 Memorial Day Classic was George Robson, in the 182 cu in. 6-cyl. Thorne Eng. Co. Special

ROBSON

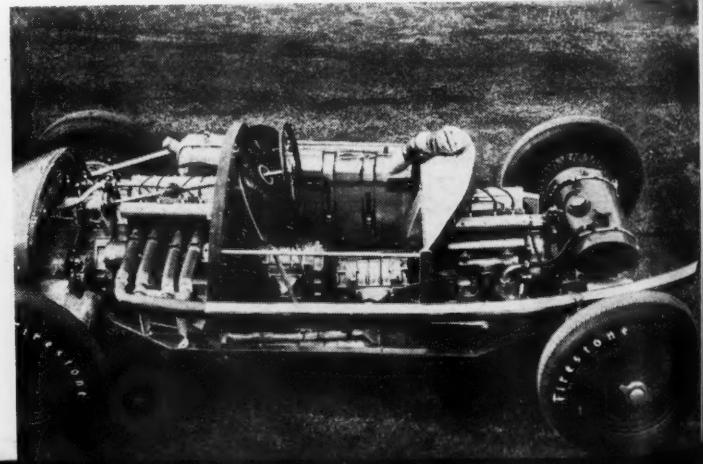
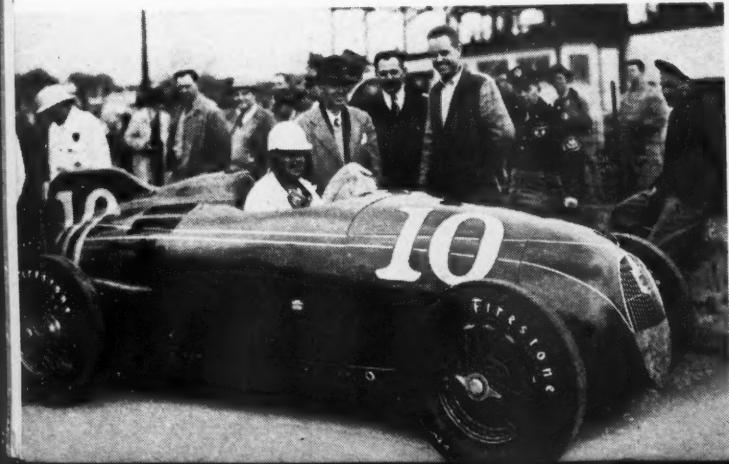
Wins at Indianapolis

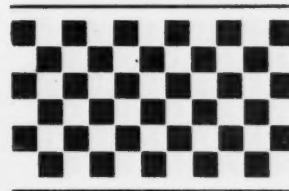
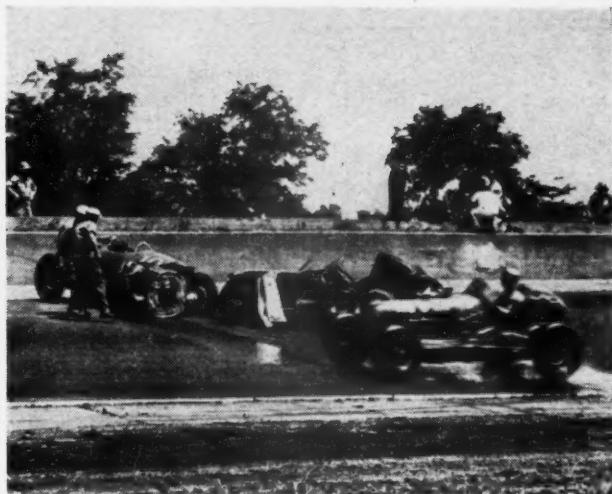
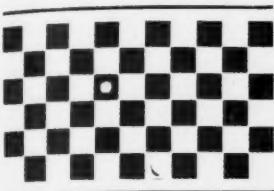
Winners average 114.820 m.p.h. with only nine cars running at finish. Crack-ups slow field. Ralph Hepburn sets new qualifying record of 133.944 m.p.h.

By ROBERT J. JACKSON
The Perfect Circle Co.

Second fastest qualifier, Russo, in the Fageol Twin Coach Special. During the race he suffered a broken leg when his racer spun and struck the north wall of the track.

General view of the Fageol Twin Coach Special driven by Paul Russo, showing the front and rear engine arrangement and amidships fuel tank.





GEORGE ROBSON in a Thorne Engineering Company Special won the Indianapolis 500-mile race at an average speed of 114.820. Jimmie Jackson, in his

Jackson Special, was second, 43 seconds behind Robson. From the halfway mark on, this duo dueled for the lead. Sometimes as little as 4 seconds separated them. Jackson actually led for 5 laps. Robson led the race almost three-fourths of the distance.

The race itself, probably due to the long war lay-off, was a succession of car troubles and failures which left only nine cars running at the finish.

The race began with a sensational burst into the lead by Mauri Rose from his starting position on the outside of the third row. Including the first, Rose led for 8 laps most of them well out in the breeze ahead of the pack. Then Rex Mays came up and relegated Mauri to second spot. Meanwhile, Ralph Hepburn, manning the fastest wheels in Indianapolis history, was working his way up from the middle ranks of the field. Capably and conservatively, yet with a strong force stemming from the mighty performance of his Novi Governor Special Hepburn needle-and-threaded his passage through the other rivals for the lead. At about ten laps he gained the van. From then on he was not headed until he went into his pit on his 56th lap. This stop developed into a lengthy one. During which front tires, fuel, and brake adjustments were added. And a deal of oil or perhaps brake fluid mopping was observed. This stop was about eight minutes.

Meanwhile, Rex Mays had encountered the grim reality of a failing exhaust header which caused him to make several unscheduled pit stops, thus dropping his fortunes completely from the ranks of the leaders. Cliff Bergere was running smoothly and capably in the 3rd spot about this time.

Dramatic view of the wreck at the north wall of the track, showing the wrecked racer driven by Paul Russo (at the left), and Mauri Rose's car (right). Doctors are shown administering first aid to Rose (lying on retaining wall in rear). He was not seriously hurt.

his way. The yellow caution light went on and stayed for twenty minutes or so, then Mauri Rose, who had been occupying the place spot after Mays' troubles began, was involved in a serious crash at the scene of the Russo wreck. He was reported as OK after the spill. Hepburn continued his winning dash, although the yellow light came on again.

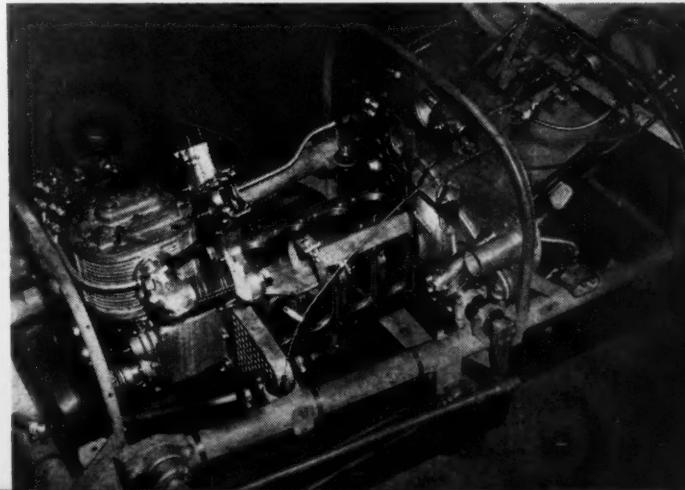
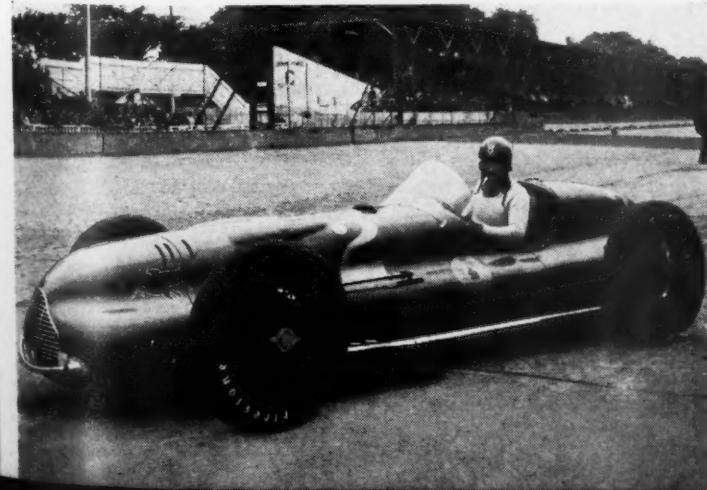
At the 50-mile mark George Robson was listed in fourth place. After this he never was below that level except for brief intervals due to pit stop changes in the standings. At 75-miles he still was fourth.

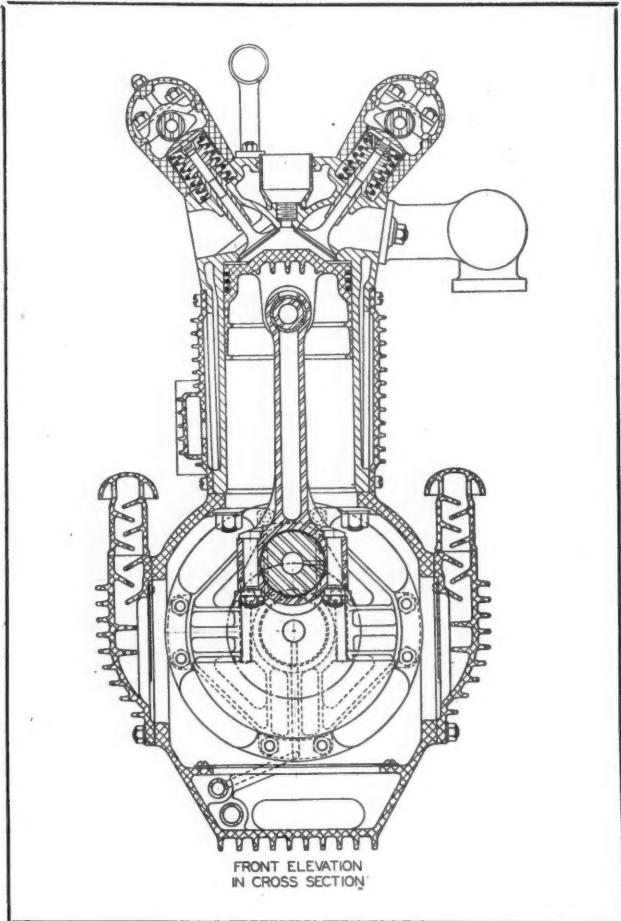
Came 50 laps (125 miles) and Robson was in the place money, just behind Hepburn. The others in the first ten were, in order: Bergere, Jimmie Jackson, Emil Andres, Harry McQuinn, Russ Snowberger, Billy Devore, Louis Durant, and Joie Chitwood. The average for that distance was 117.744 M.P.H. Thus began a grouping in the first ten places of most of the names which appear as the ultimate finishers.

At 100 laps Robson was leading Jimmie Jackson, his duelling partner for the balance of the day, by a brief margin only, with Snowberger (Duke Nalon driving) in the place and Andres, Hepburn (coming up again after his long stop), Durant, McQuinn (car failing), Chitwood, Al Putnam and Ted Horn trailing. Horn had suffered the severe handicap of a five minute pit stop on his 7th or 8th lap and was just now showing in the 1st ten. He stayed there the rest of the afternoon, working his way to the show money at the finish by skillful and patient handling of a slipping clutch. His stop was to change a magneto which had gone bad. Villoresi, who finally finished seventh in a Maserati, changed three magnetos during the day.

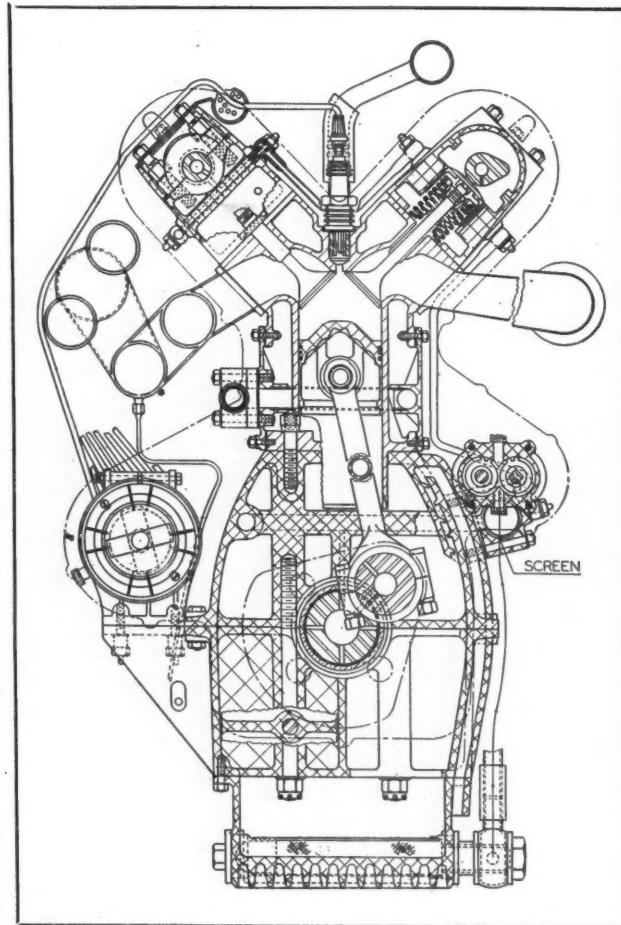
Ralph Hepburn seated in his Novi Governor Special which shattered the existing lap record and clocked a new record of 134.449 MPH.

Below is a view of No. 41 Offenhauser Special, showing steel tube frame structure and the welded unit construction. The cylinder block has been removed.





At the left is a view of the Offenhauser engine similar to the one that Jackson drove into second place. The lower illustration is typical of the Maseratti engine.



For the remaining 250 miles Robson and Jimmy Jackson monopolized the lead and place spots. The balance of the favored few underwent few changes, but they were painful ones for Hepburn, McQuinn (Wilburn driving), and others. Hepburn's forced retirement on his 120th lap was caused, it was announced, by a broken valve which resulted in some much larger portions of his engine coming unstuck.

The results of the Robson-Jackson tilt were rather easily guessed from here on out. At 180 laps the standings were: Robson, Jackson, Horn, Andres, Chitwood (Hanks driving), Durant, Devore, Villoresi, Wearne, and Hansen. At this stage of the proceedings, with only ten or eleven cars still running, the pertinent speculations was not, who would finish where, but who would finish period.

At 190 laps, the only change was the elimination of Devore by his crash in the south turn (due, it was reported, to a sticking throttle) and the consequent advancement of those behind him by one position. This brought Bill Sheffler, who had been "put-putting" around most of the afternoon at about 80 or 90 M.P.H. with one broken rear axleshaft to thank for his tortoise tactics, into the tenth position.

The 1946 Indianapolis race, first major motor racing marathon of the American post-war scene, summoned a total of 56 entries, including a team entry of 3 cars made by a racing organization of Milan, Italy. Contrary to previous years, the lists were about evenly divided between fours, sixes, eights, with the usual representation of twelves and sixteens—one each.

Also entered was a Carracciola Special which is understood to be one of the 91.5 cu. in. Mercedes that placed first and second in the last Tripoli race held before the war. Much interest was centered in this entry and it is indeed regrettable that it was scratched due to shipping difficulties.

In addition to the Italian team entry mentioned above the entry list also embraced ten Italian built cars now in American hands, including the Boyle Maserati which won in 1939 and 1940.

Defense of American honors rested with a very capable group of cars and drivers, although the cars themselves were very little changed from their pre-war specifications. A notable degree of post-war reconversion was achieved, however in several instances.

Without doubt, the most interesting example of post-war design on hand was the Fageol Twin Coach Special. Three important design objectives were attained by Mr. Fageol and his group in the development of this car. These aims were: effective weight distribution; unshifting center of gravity; and constant tractive effort.

The photo illustrates the use of an engine at each end of the car. Each drives, but independent of the other. There is no power connection between these engines. They are linked only by a common throttle control which is set to give identical engine speeds. This particular form of design disposes of two of Mr. Fageol's primary objectives—weight distribution and tractive effort. With an engine at each end of the car, the weight concentrated on the wheels is practically the same at either front or rear. There being no power connection between front and rear engines, either can drive its pair of wheels.

The third objective—that of unshifting center of gravity—is met by locating the bulk of the fuel supply in the center of the chassis.

(Continued on page 54)

OPA's Statistical Data

Inaccurate and Misleading

NADA's president W. L. Mallon tells committee that by juggling facts, OPA has created false impressions in the minds of the people about dealer profits and losses

INCOMPLETE, inaccurate and presented in tricky ways designed to mislead the listeners and leave wholly false impressions, were among the charges hurled at the OPA and some of its statistical presentations by W. L. Mallon testifying before the Senate Banking and Currency Committee.

Using Chilton data to back up his points, N.A.D.A.'s president spoke with telling effect in favor of the cost absorption moratorium as proposed by the House Amendment. Among the points stressed by Mallon were that one-fourth of the car dealers were forced to close their doors because of the war and that they only sold 569,990 rationed new cars during the war period. At the same time operating costs have increased 25.91 per cent.

If new cars had been available, and 1941 new car sales averages had been maintained during the 1942-1945 period, dealers would have sold, exclusive of rationed units, a total of 14,350,674 new cars. Gross proceeds of such sales would have amounted to 15 billion dollars and the gross profit on such a group at an average retail price of \$1,000 would have been 3 billion 445 million dollars. That staggering sum is gross profit that the dealers would have earned as a minimum, Mr. Mallon asserted.

At the same time, 4,300,429 cars were junked and car

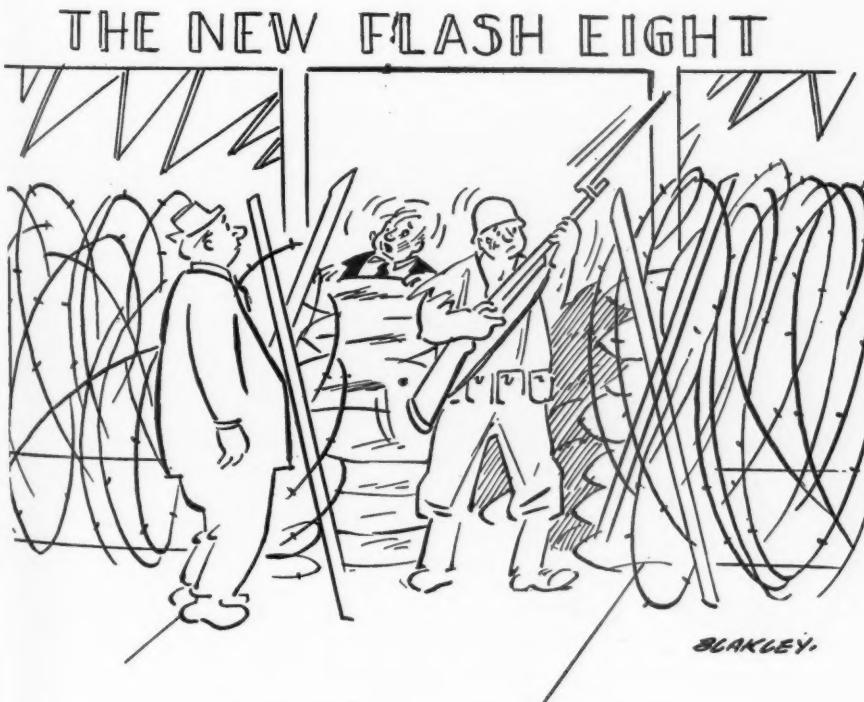
dealers' profits from service dropped proportionately. This, Mr. Mallon estimated as being \$2,762,704,800. Rationing of gas and oil increased dealers' losses by an additional 10 billion dollars for the four years. Total reductions in new car service, service and supply volume, grossed in excess of 27% billion dollars, of which car dealers sustained 15 billion dollars and shared deeply in the other 12% billion.

When criticizing the OPA, Mr. Mallon was careful to single out Chester Bowles, emphasizing that dealer difficulties were coincident with appointment of Bowles and that the N.A.D.A.'s relationship with OPA under Henderson and Prentiss Brown were of a cordial and understanding nature.

Typical of OPA retail automobile statistical presentations is the studied avoidance in them of the disastrous dealer years of 1942-43, Mr. Mallon stated, and as an example he pointed out that Mr. Bowles at a House hearing in attempting to deny the failure of almost 10,000 dealers from 1942 to 1945, suggested it could not be true as Dun and Bradstreet reports showed only 1222 failures throughout the country in 1944. He failed to state, however, Mr. Mallon emphasized, that this same financial report showed 9405 failures for 1942 and 3221 for 1945. A recent attempt by Mr. Porter in a letter to Chairman Spence of the House Banking and Currency Committee, to make war-time operations of dealers appear prosperous, also failed to mention disastrous 1942-43 income results. The chief cause of our present grave troubles, Mr. Mallon pointed out, is a vague survey of the income returns of about 300 unidentified dealers, which OPA says justifies the three heavy cost absorption cuts it has imposed upon dealers since last fall. Efforts to obtain access to this report have failed and OPA says it is confidential.

Briefly, the amendment which the N.A.D.A. is advocating and which has passed the House, would provide that retail establishments which for a period of three years following March 2, 1942, had, by Government action, been deprived of 75 per cent or more of their normal supply of goods, should be given temporary protection against OPA cost absorption impositions.

This will give dealers some respite from the difficulties encountered with Chester Bowles.





MOTOR AGE

BASIC COURSE FOR

MECHANICAL TRAINING

By J. EDWARD FORD

TOMMY WINTERS was alone when Ellis Carney, Glenrock's able but sharp-tongued druggist, rolled his aging Ford through the open door of the shop. Carney bounced out of the car with the agility of a man half his age.

"Where's Pop?" he demanded.

"He went home to lunch," said Tommy.

"Everybody else gone, too?"

"I'm here."

"Oh," said Carney.

"Mr. O'Neill will be here about 1 o'clock, if you'd like to come back then."

"Can't make it," said Carney. "And I've got to have this car tonight."

"I could write up the order," said Tommy, "and tell Mr. O'Neill about it."

Carney started to open the door of the car, but reconsidered and closed it. He took out a pocket watch and frowned at it. "I suppose I'll have to do it," he said.

"What seems to be the trouble?" asked Tommy.

"Can't keep any water in the blamed thing," said Carney. "Boils right out as soon as I start driving. Then it develops a noise—like somebody tapping the engine with a hammer."

"Overheating," said Tommy.

Carney snorted. "That's where you're wrong, my lad," he said. "The heat gage never gets a hair above where it ought to be."

"Maybe there's something wrong with it."

"The gage is perfectly okay."

"Are you sure?"

"Of course, I am," said Carney. "In fact, well—I'm sure, that's all."

Tommy put a hand on the door handle of Carney's car. "Want me to drive you home?"

"I'm not going home. I've got to get back to the store. I can walk it." He started away, but stopped and turned. "Remember," he warned, "I want Pop to look it over himself. Nobody else."

"I won't forget," promised

Guessing Right

Tommy. It would be pretty hard, he reflected as Carney disappeared through the shop door, to keep Pop from going over the car. Nobody would ever call him and Carney bosom pals.

Tommy washed up and went to the diner down the street for lunch. When he returned, Pop had not yet appeared, so Tommy got into the Ford and tramped on the starter. As Carney had hinted it would, the heat gage climbed to 165 and stayed there. That seemed odd, but when Tommy got out and raised the hood he was even more puzzled. The distributor looked like a brand-new one, or at least an exchange. The spark plugs, too, were new. Tommy unscrewed the radiator cap. The water was low but the inside of the filter neck was so clean it led Tommy to suspect the system had recently been flushed. Obviously, another shop had already tried to find the source of the trouble and had failed. As soon as Pop came back from lunch, Tommy went to the office.

"Mr. Carney brought in his Ford after you left," he said. "He says it's heating up and has a slight ping."

"That's easy enough to fix," said Pop, taking his coveralls from a closet. "Overheating, that's all."

"I told him that," said Tommy, "but he said the temperature gage never got above 165. He was right, too. I tried it."

"I wonder," said Pop, buttoning up the coveralls, "why he didn't let his brother-in-law over in Boydstown take a crack at it."

"Maybe he did." Tommy told Pop about the new plugs

**Pop O'Neill spots the right answer to a hot problem
in engine overheating when it's tossed into his lap
in this 51st article of this popular Motor Age series**



on OVERHEATING

and distributor and spic-and-span cooling system. Pop tugged at the lobe of an ear a moment, then walked around the desk and sat down.

"I get a little tired playin' second fiddle to that nut buster over in Boydstown," he said, frowning. Then gradually the frown was replaced with a broad grin. "You know," he went on, "I could play an awful dirty trick on Carney."

"You wouldn't do anything to his car," said Tommy.

"No. This repairman over in Boydstown is the brother of Carney's wife. She makes him drive all the way over there to keep the few bucks in the family. I can just imagine what'd happen to Carney if I called her up and told her he'd brought a car in here." Pop reached for the phone.

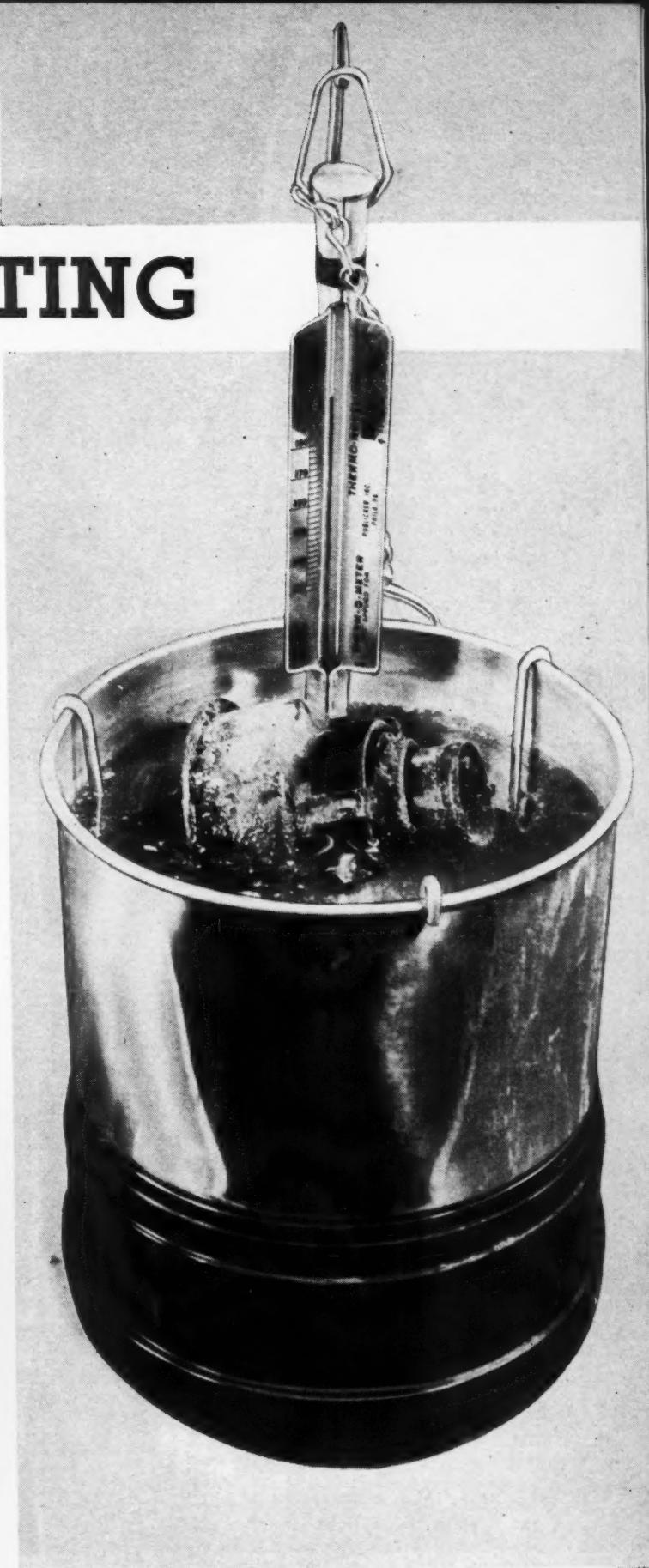
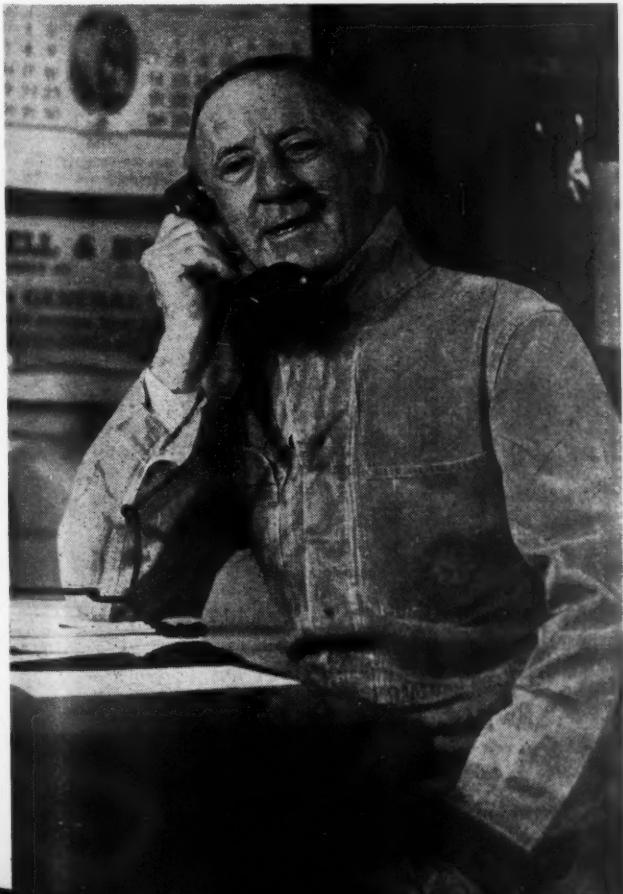
"You're not really going to call her?" said Tommy.

"No, said Pop. "I'm gonna find out what gives on this deal." He dialed a number and drummed the desk with the fingers of his free hand while he waited.

"Hello, Ellis," he said. "This is O'Neill. I run a repair shop here in Glenrock.

R e m e m b e r ? Well,
there's an old car in
here and my appren-
tice says it belongs to
you." He was silent a
few seconds. "Sure he
told me about it. But
(Continued on page 52)

Method of checking thermo-
stat opening temperature in
heated water is illustrated in
photo at right.



"No," said Pop, "I'm not burned up. I like to work on jobs that somebody else stubbed a toe on!"

1946 BUICK Lubrication

Series	Model	Crank-case Quarts (Refill)	Trans-mission Pints	Rear Axle Pints	Steering Gear Ounces
40	Special	5½	1¾	3	15
50	Super	5½	1¾	3	15
70	Roadmaster	7	2½	3	15
	Cooling System With Heater		Cooling System Without Heater		5
	Quarts		Quarts		
40	Special	14¼	13	13	19
50	Super	14¼	13	13	19
40	Roadmaster	18	16¾	16¾	19
	Gas Tank Gallons				

Engine—Oil level in the crankcase should be maintained at the "full" mark on the oil level gage stick. The crankcase should be completely drained and refilled with new oil of the proper viscosity at the end of the first 1000 miles, and every 2000 to 3000 miles thereafter. Adverse driving conditions may require more frequent draining and refilling. Regular oils are satisfactory for normal operating conditions. Use Premium or Heavy Duty oils for severe operating conditions.

Temperature Grade

Not lower than 32 degrees F.

20-W or S.A.E. 20

As low as plus 10 degrees F..20-W

As low as minus 10 degrees F.

10-W

Below minus 10 degrees F.

10-W plus 10 per cent Kerosene

Body—Every 1000 Miles

Hood Latch Mechanism—Light machine oil

Windshield Wiper Shaft—Use light machine oil

Door Hinge Pins—No lubrication required

Door Lock Bolts—Use GM Door-Ease lubricant on curved side. Use light machine oil on flat side.

Lock Cylinders—Lubricate with powdered graphite.

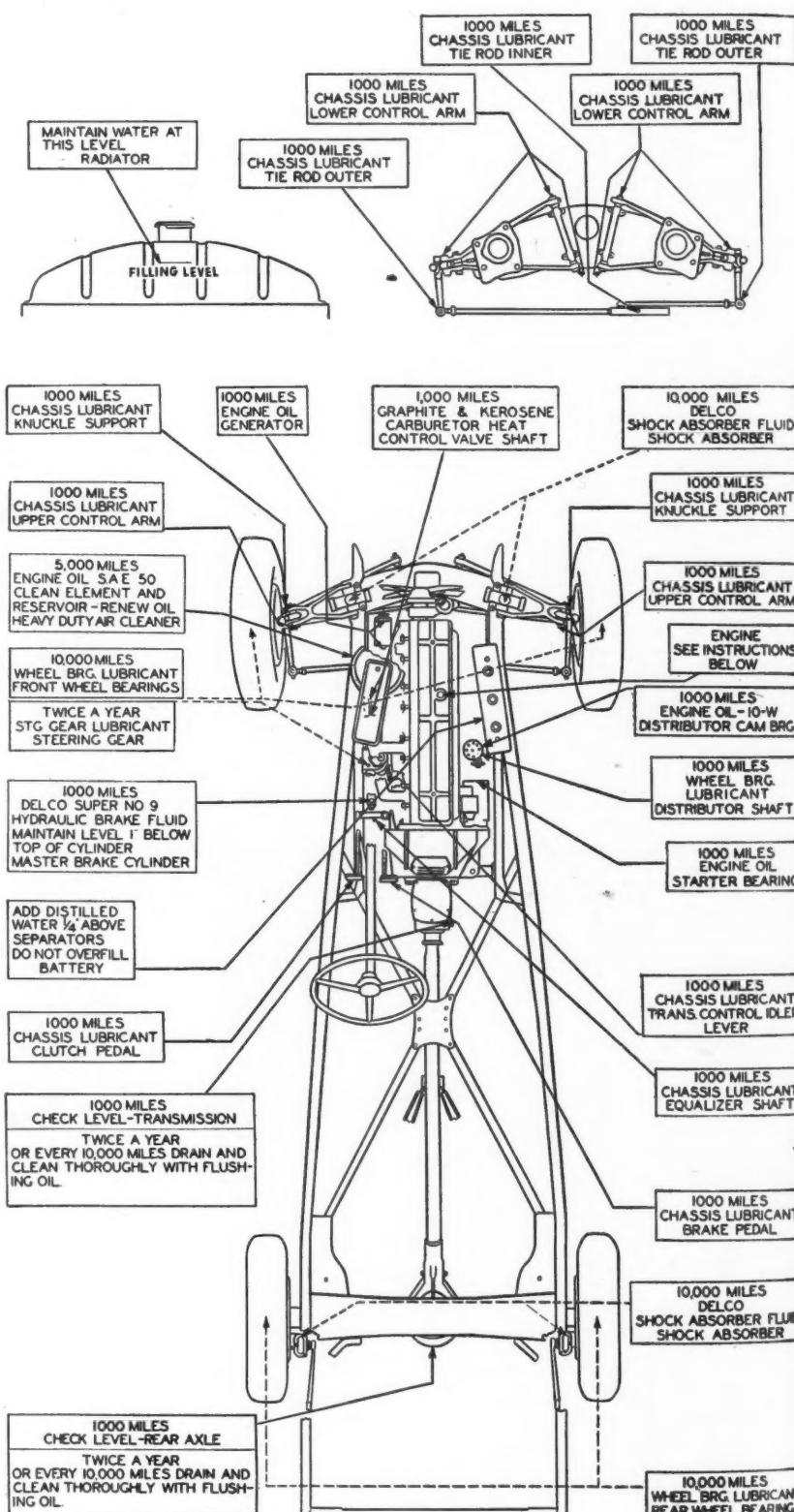
Door Check—Use light machine oil on hinge pin.

Door Dovetail Bumpers and Striker Plate—Apply GM Door-Ease Lubricant to the composition shoes and surface of lock striker.

Door Check Link Bumper—Lubricate with graphited light machine oil by placing door in open position and placing nozzle of oil can through hole in door facing through which check link travels.

Door Hold Open Shoes—Lubricate with Graphite Grease.

Rear Compartment Lid Lock Mechanism—Lubricate moving parts with cup grease.



Car Conservation Helps Build Service Volume

Recently launched Safety Check campaign will keep service volume flowing through shops

WITH virtually no new cars since 1942 and volume production of new models still in the dim and distant future, car owners are debating whether to wait for a new car or have the old one repaired. The difficulties encountered during the war of getting major repairs performed in a reasonable time has tended to make many owners postpone needed maintenance and to affirm in their minds the desirability of waiting for a new car. Furthermore the congested conditions in the shops and the scarcity of repair parts have confirmed this feeling.

However, as the months have passed and strikes have continued, the possibility of getting a new car has become increasingly vague. Thoughtful owners, therefore, in weighing these pros and cons are becoming more and more receptive to "care will save your car" pleas made by the service repair shop. Further, urging the car owner to take proper care of his vehicle is the new "Safety Check Campaign" which is being made by the International Police Chiefs Association. This campaign is, of course, based on the appalling loss of life in automobile accidents.

While some car owners will react to this safety plea and others to the argument that it's just good business to keep their car in good repair, maintenance shops everywhere are using the nation-wide situation to keep their shop filled to overflowing.

All during the war period shops had to compete for mechanics with other industries who paid higher wages. Now, however, since OPA has once more decreed that it is permissible to increase charges to the car owner, in shops employing less than eight, service departments should have no difficulty in paying higher wages and it is therefore now possible to get the necessary help to repair the additional business resulting from a "save-your-car campaign" or a safety check. And when it comes to parts, latest advices from the Automotive and Aviation Parts Manufacturers, Inc., point out that for the first time since war was declared that there are practically no back orders for replacement parts and the pipe lines are full. In other words, automotive jobbers are once more in a position to supply most of the needed parts. In addition, demobilization of the armed forces has provided the industry with a great number of additional mechanics. Repair shops are, therefore, able to solicit additional business and help keep America on wheels.

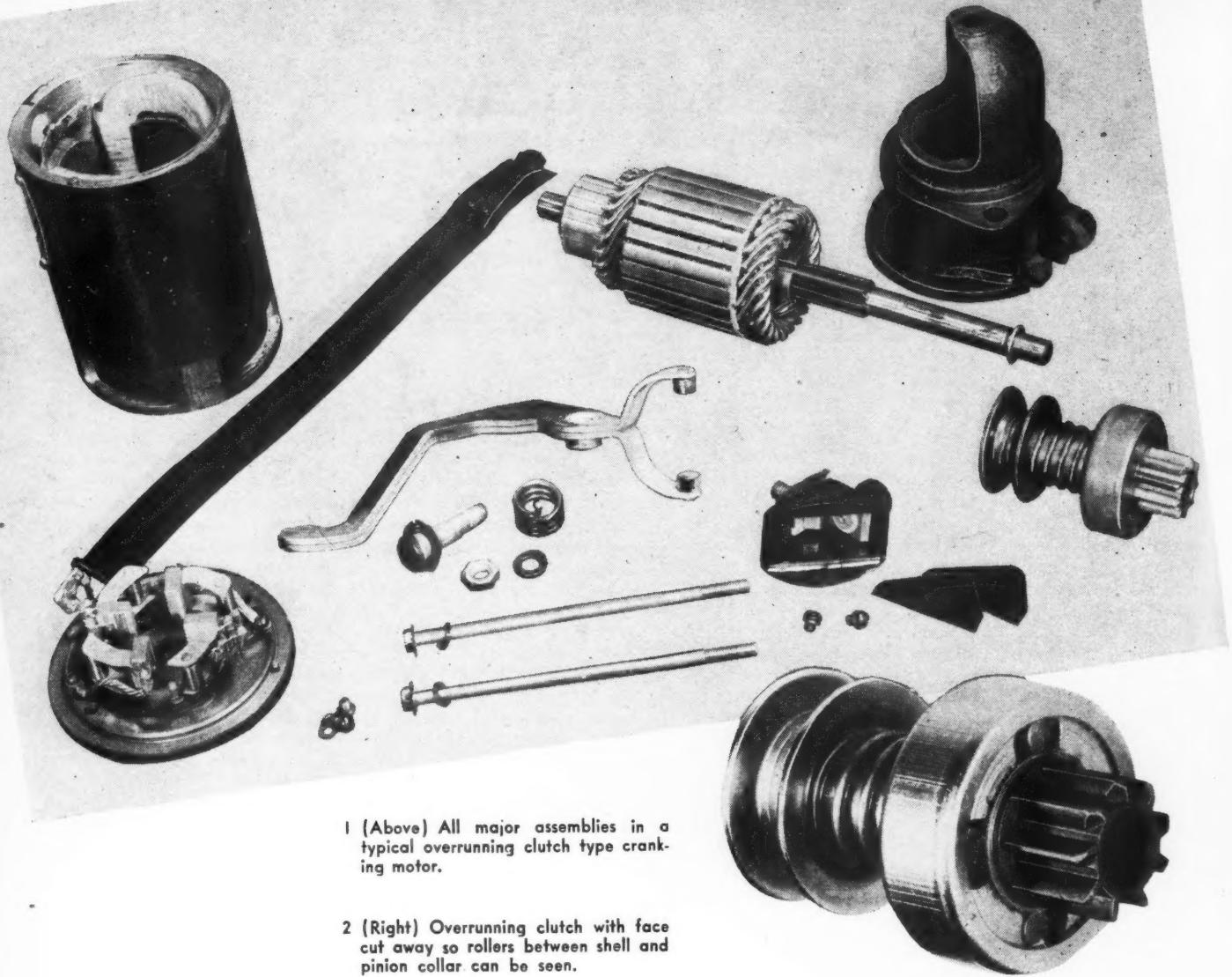
This is no less a patriotic duty than it was during the war. During the war it was a question of beating an armed enemy. Today the job is one of maintaining prosperity and by saving the car, you save human life and nation-wide prosperity also, by increasing the manufacture and sale of parts, accessories and tires in the automotive industry. Furthermore, prosperity is promoted in other industries by enabling the car-owning public to travel to work and also to have a motoring vacation.

The campaign to promote safety is receiving tremendous impetus from speeches by President Truman and also through the efforts of various associations throughout the country. Naturally, everything should be done to make automotive vehicles safe to drive. However, the better shops, in addition to checking cars for safety, are also selling performance, comfort and appearance maintenance, and in that way are really serving their customers by maintaining the value of their cars and will, therefore, retain the owner's good will in the years to come.

Shop operators can do much for the car owning public by urging car owners to keep their cars in top condition.



"I gotta tend the flowers for a week for talking back to a customer!"



1 (Above) All major assemblies in a typical overrunning clutch type cranking motor.

2 (Right) Overrunning clutch with face cut away so rollers between shell and pinion collar can be seen.

STARTING MOTORS and

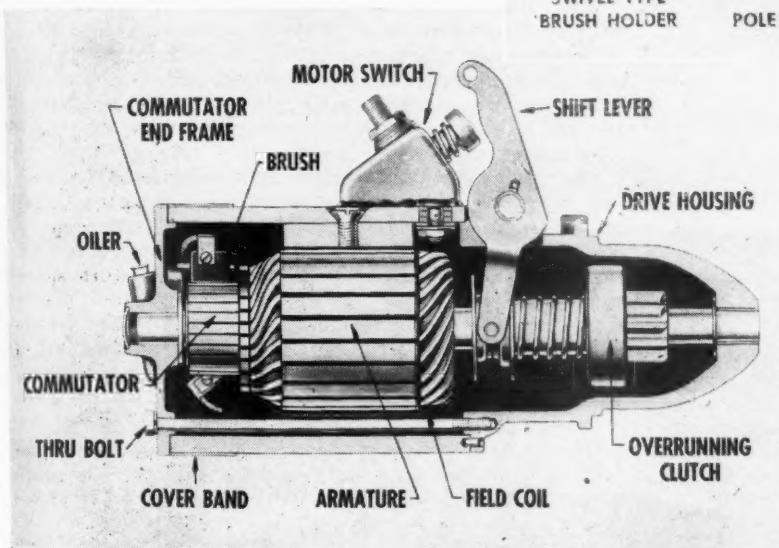
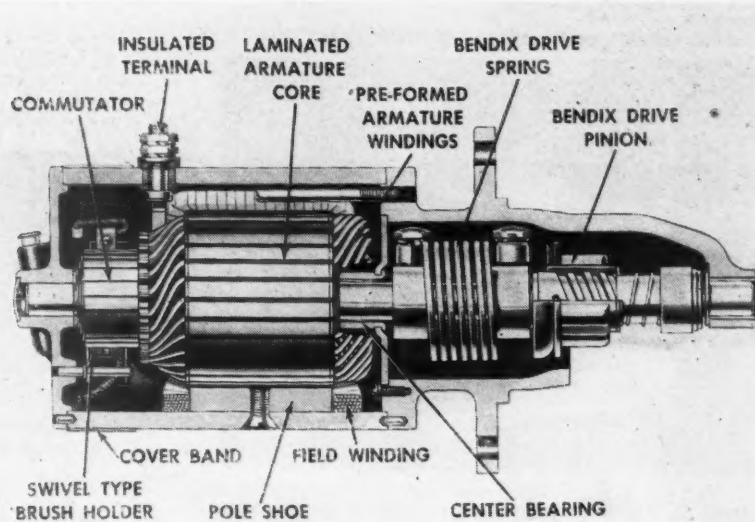
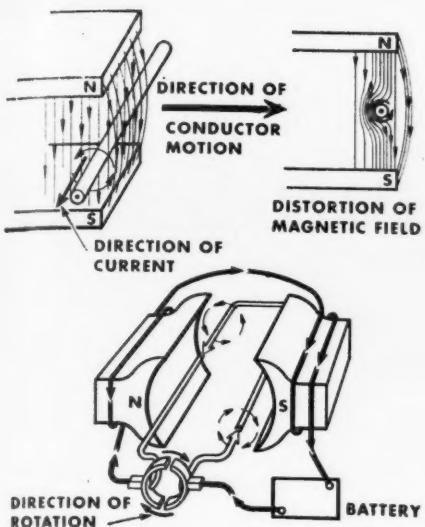
THE cranking motor is similar to any other electrical motor in its basic principle of operation. This principle is that *opposing* magnetic fields tend to attract each other while *like* magnetic fields repel each other. The power producing part of the cranking motor consists of an armature and a field winding assembly (Figs. 4 and 5). The armature contains a number of heavy conductors assembled in a soft iron core which in turn is pressed on the armature shaft. The conductors are fed electrical current from the battery through the commutator so that they create a magnetic field pattern.* At the same time, a flow of current through the field winding from the battery creates another magnetic field pattern which opposes the armature magnetic field in such

a way that the armature is forced to rotate. Let us consider this matter in more detail.

To the upper left in Fig. 3, a conductor carrying a flow of current is shown in a magnetic field from a horseshoe magnet. By using the right-hand thumb rule,* it will be seen that a magnetic field circles the conductor as shown by the circular arrows. This pushes the conductor to the right. The reason that this push on the conductor occurs is shown to the upper right in Fig. 3. The current flow through the conductor, in producing a circular magnetic field, causes the magnetic lines of force to distort around the conductor as shown. The lines of force attempt to straighten out, and it is this "straightening out" effect that causes the strong thrust on the conductor. With this in mind, let us now examine the simplified cranking motor shown at the bottom of Fig. 3.

The motor shown is a simple unit with one turn in the armature and a two-bar commutator. As we follow the

* Curl fingers around conductor with thumb pointing in direction of current flow. Fingers will point in direction magnetic field circles conductor.



3 (Upper Left) Effect of current flow through a conductor held in a magnetic field and how this causes cranking motor armature to rotate.

4 (Above) Sectional view of Bendix drive type Delco-Remy cranking motor.

5 (Left) Sectional view of overrunning clutch type Delco-Remy cranking motor.



How They Operate

flow of current from the battery, we note that it goes through the right-hand brush and commutator bar, along the right side of the armature winding, back along the left side, through the left-hand commutator bar and brush, and then through the two field windings and back to the battery. As it passes through the right-hand side of the armature winding, the current produces a circular magnetic field as shown, and this would cause a downward thrust on the conductor. Since the current flows in the opposite direction through the left-hand side of the armature winding, the thrust will be upward on it. These two thrusts cause the armature to rotate in a clockwise direction.

This motor is a series wound unit since the field winding and the armature winding are connected in series. The current that flows through the armature winding also flows through the field windings to strengthen the magnetic field from them.

(Continued on page 64)

Starting motor principles of operation are discussed in the 4th article of this series on the ignition system

By WILLIAM H. CROUSE

Intra-Shop



Intercom station at Customer's
Entrance to Service Department.

Trumpet type speaker installed in
body shop.

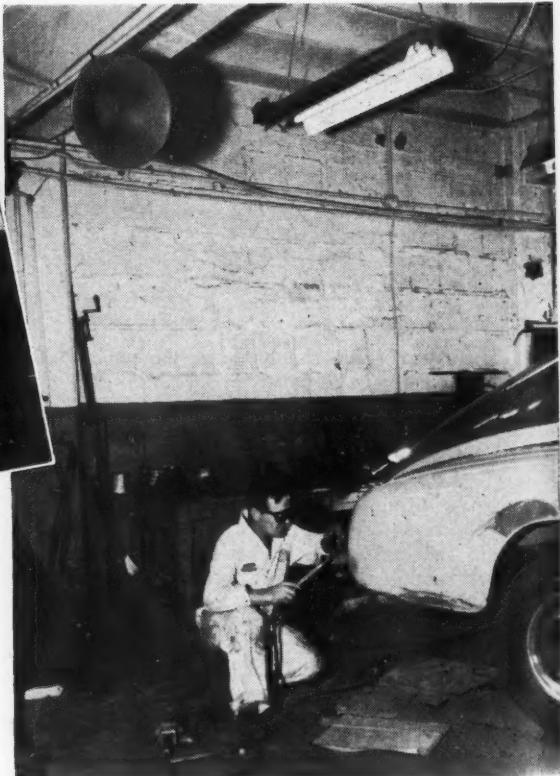
We sometimes think of an office or plant intercommunication system as a means of executive control, a convenience for the "Boss" to keep in touch with all departments—but it can be much more than that.

Through specially engineered intercom installations, automobile dealerships and other service organizations can reduce wasted man hours to a minimum, keep production at peak levels and create customer goodwill through improved service.

Some communication systems are engineered to meet such purchaser's special requirements and make it possible for information to flow smoothly through every department, enabling a central point to know the progress of every job and to answer customers' questions with speed and intelligence.

One noteworthy application of such an intercom system is in operation at Monarch Motor Co., Indianapolis, a

Above photo shows Central Control Tower equipped with master station showing control charts and service records.



Communication Boosts Service Volume

dealership operating one of the largest auto service and repair shops in that city. The Monarch service departments spread out into several buildings and different floors, normally presenting a costly and exasperating communication problem.

Installation of an inter-communication system in this organization has coordinated the various and widespread departments as efficiently and as effectively as if they were all in one room.

The system adopted by Monarch consists of a central control tower located on the first floor overlooking the service entrance and lubrication department, and 16 outlying departments. The central control tower is equipped with a master station which maintains two-way communication with each of the other 16 stations located in their various departments. The amount of time and labor saved through operation of this system is an essential factor in the successful operation of

**Increased profits and service volume
are reported by this operator following
the installation and use of an inter-com-
munication system in his Midwest shop**

Monarch's service department, the firm has reported. Communication stations are located in the central control tower; brake repair, motor tune-up, metal working, body and front-end alignment shops; in the cashier and bookkeeping, motor overhaul, clutch and transmission, general repair and lubrication departments; in the service manager's office, body shop foreman's office, shop foreman's office and general mechanics' station.

The central control station knows the location of every car in the shops at any given time, directs necessary supplies to any department or workman at a minute's notice, regulates the movement of cars being serviced, asks for and gives information without taking workmen off their jobs, handles all details of intra-shop activity without using high-wage workers as errand boys.

Trumpet type speakers are used in high noise level and large areas. A mechanic working under a car can hear a call and carry on a two-way conversation without leaving his work to approach the intercom unit even if he is 60 to 100 feet away.

Use of the trumpet type speakers, permits the central control tower to quickly locate any man in the shop and give or receive instructions without halting work. Any department, such as the cashier's office, is in immediate contact with any

(Continued on page 68)

Intercom station in carburetor section of Motor Repair.



FRANK THE FIXER

STORY BY J.E. FORD
DRAWN BY A.L. CASSEL

AW, LET'S STOP PLAYIN'
AROUND WITH THEM
GARAGE GUYS. LET LOUIE
AN' ME RUB 'EM OUT

NO, WE DON'T
WANNA TAKE NO
MURDER RAP.
I'M GONNA LET
OLGA FRAME 'EM.

I WANT YOU TO PLANT
THIS BAGFUL OF MONEY
WE MADE, THEN WE'LL
TIP OFF THE F.B.I.
THAT THE BOYS IS
COUNTERFEITERS.

I'LL HAVE TO
WORK ON THE
FAT BOY. THE
OTHER DOPE SEEN
ME AT OUR OTHER
HANGOUT.



MOTOR AGE PICTURE GALLERY OF THE

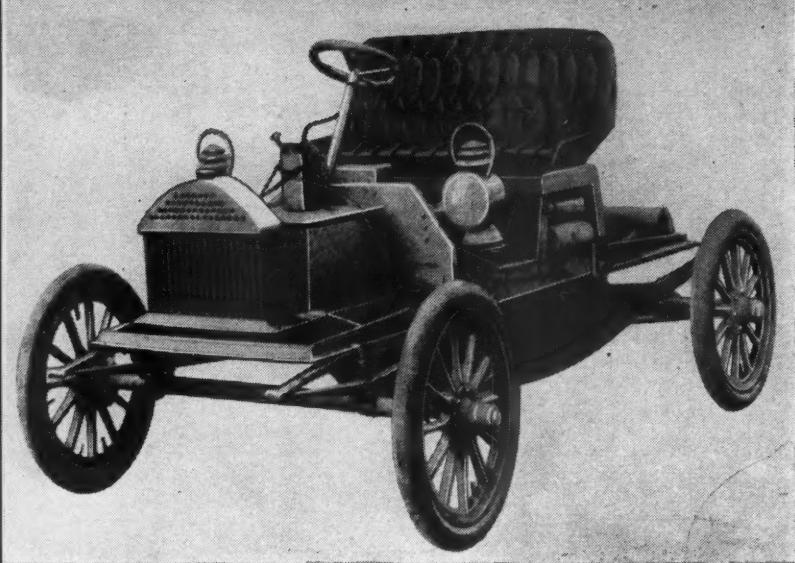
Detroit Automotive G O L D E N J U B I L E E



FIFTY years ago the horseless carriage was frightening pedestrians and horses as it sped down the road at 10 miles per hour, and now Detroit is celebrating the Golden Jubilee of what has become the world's biggest manufacturing industry. Over 88 million automotive vehicles have rolled off assembly lines since those early motorists ignored the scornful advice of passersby to "get a horse." Today the horse is almost as great a curiosity as the automobile was at the turn of the century. A trip that required a full day with a horse and buggy, and was accomplished at the expense of great discomfort and

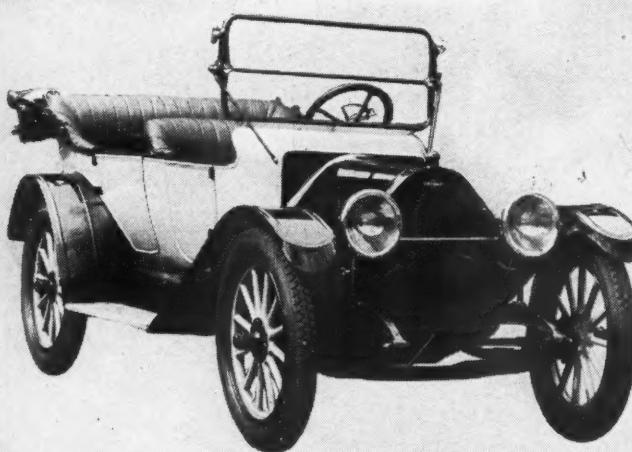
energy is now accomplished in an hour or less with ease. To those pioneers who had the courage, the foresight, the technical knowledge and mechanical ability to start this colossal industry on its way, the entire nation pays homage. Without these leaders the world would indeed be poorer for as a result of their genius, roads have been built, cities and towns have grown, and allied industries thrived.

To further commemorate this Golden Jubilee, Motor Age is printing these photographs of first models to be made by the various companies which are still in business making cars.

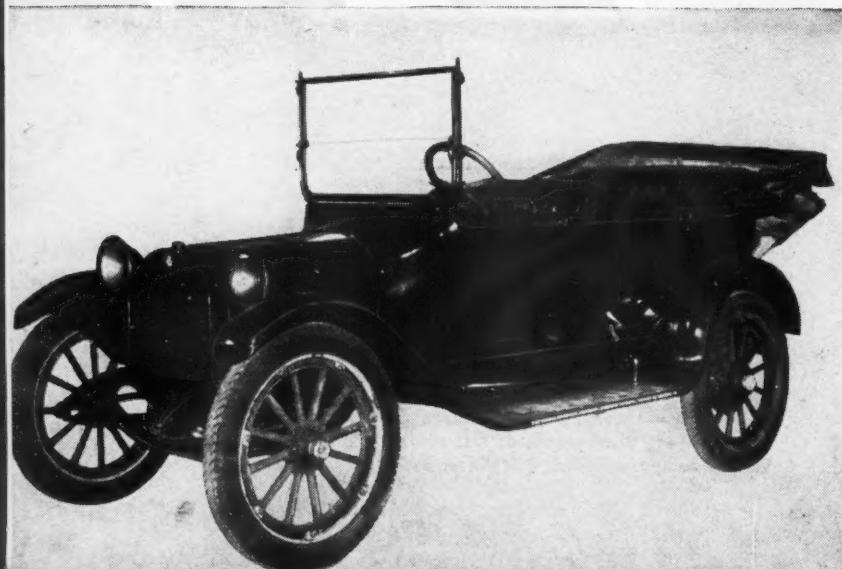


↑ The historic Buick viewed here was the subject of comment in 1900 because it was advertised as a "thousand dollar car." Windshield, speedometer and top were considered as accessories and were optional.

→ This Cadillac Runabout, popular model during its day, was seen on the streets of the country during 1902-1903 and will appear in the Antique Automobile Exposition at Detroit during the Golden Jubilee, May 29 to June 9.



First car to have an all-steel body was this 1914 Dodge. This advance in automobile construction was the first major improvement in body design. ↓



Birthdays of Current Cars More Than Five Years Old

Buick	1903(1)	Lincoln	1921
Cadillac	1902	Mercury	1939
Chevrolet	1912	Nash	1916(3)
Chrysler	1924	Oldsmobile	1897
Crosley	1939	Packard	1899
DeSoto	1928	Plymouth	1928(4)
Dodge	1914	Pontiac	1926(5)
Ford	1896(2)	Studebaker	1902(6)
Hudson	1909	Willys-Overland	1903

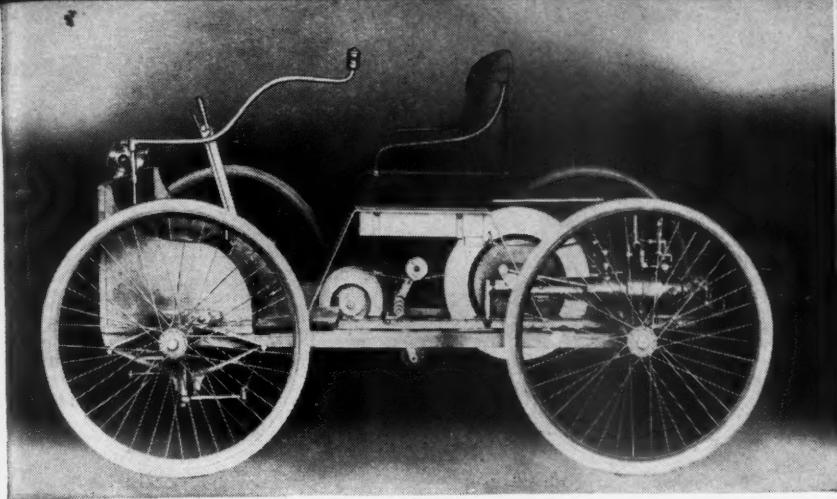
(1) Succeeded Det. Auto. Co., organized 1896. (2) Present Ford Co., organized 1903. (3) Succeeded Rambler, born 1902. (4) Succeeded Maxwell, born 1904. (5) Original Pontiac product of Pontiac Body Co. 1885-1907 which was reorganized as Oakland M.C. Co., 1907. (6) Predecessors date back to wagon builders of 1835.



A six-cylinder, 26-horsepower Chevrolet touring car which was produced in 1912 is shown here. It was described as being capable of "crawling along" at two miles per hour in high gear, or skimming highways at 50 miles per hour.

← J. Frank Duryea, co-inventor, designer and builder of America's first gasoline automobile in 1893, is shown at the tiller of a 1896 Duryea model. ↓





↑ Henry Ford's first car made its appearance in Detroit on June 4, 1896. The automobile was belt-driven by a two-cylinder gasoline engine mounted over the rear axle. Two speeds forward, 10 and 20 miles per hour, were featured.

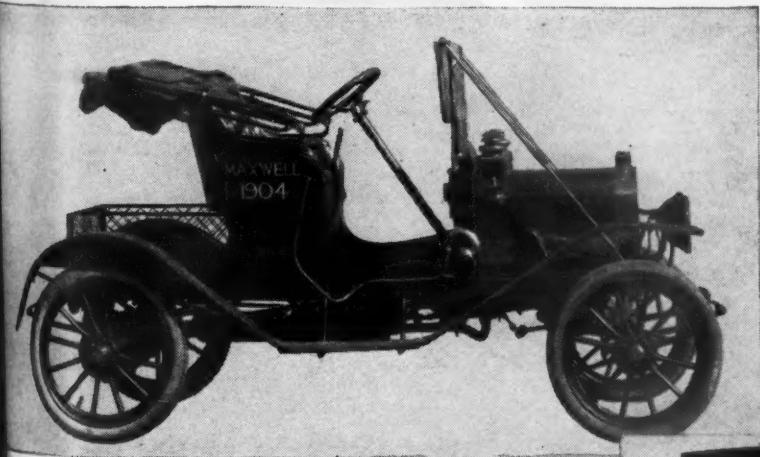


Charles Brady King, seated at the tiller of his second automobile, displayed his automobile during 1896. Seated next to King is Oliver E. Barthel, later associated with Henry Ford in the development of the Model T.



↑ The Hudson car was first introduced to the American public in 1909. One of the first models produced is shown here. Of particular interest are the size of its fenders and the small running board area.

↓ Maxwell, predecessor of today's Plymouth, made its appearance during the early automotive days.



The Oakland pictured here, a 1907 model, was the forerunner of the modern Pontiac car. It was well received by the public during that era. →

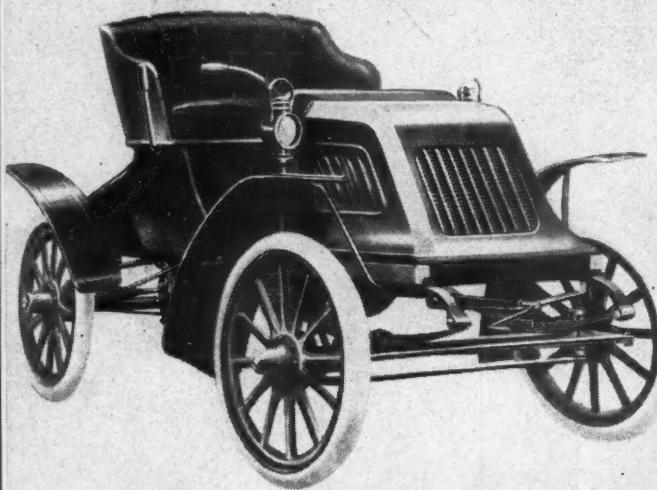


**DETROIT
AUTOMOTIVE
GOLDEN
JUBILEE**



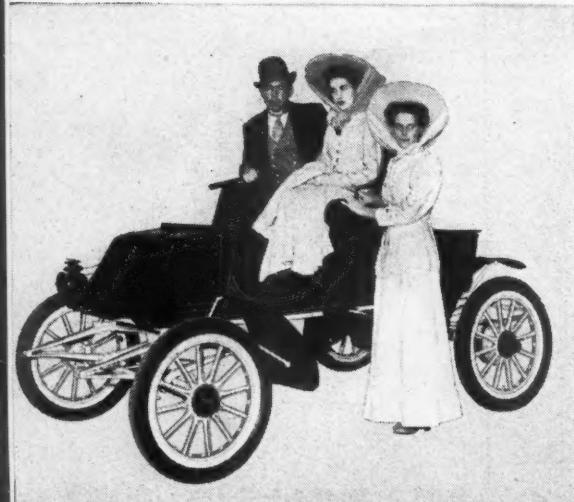
↑ The first Oldsmobile to come out of the Oldsmobile shops was this 1897 model. Speed in the construction of the first car, and excellent workmanship was stressed at the start of the company.

← The Overland viewed here was the beginning of the Willys line of automobiles, and a great deal larger than the cars which were to appear later.

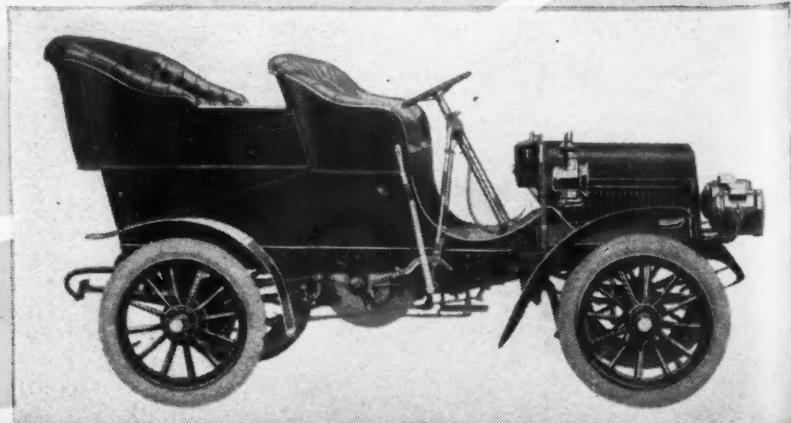


→ The first Packard built was this Model A, a single-cylinder, one-seat model, built in 1899. Equipped with an automatic spark advance, it had a 12 horsepower engine and was chain-driven.

Predecessor of the modern Nash is this 1902 Rambler. It had no running board, abbreviated fenders and was "handsomely styled."



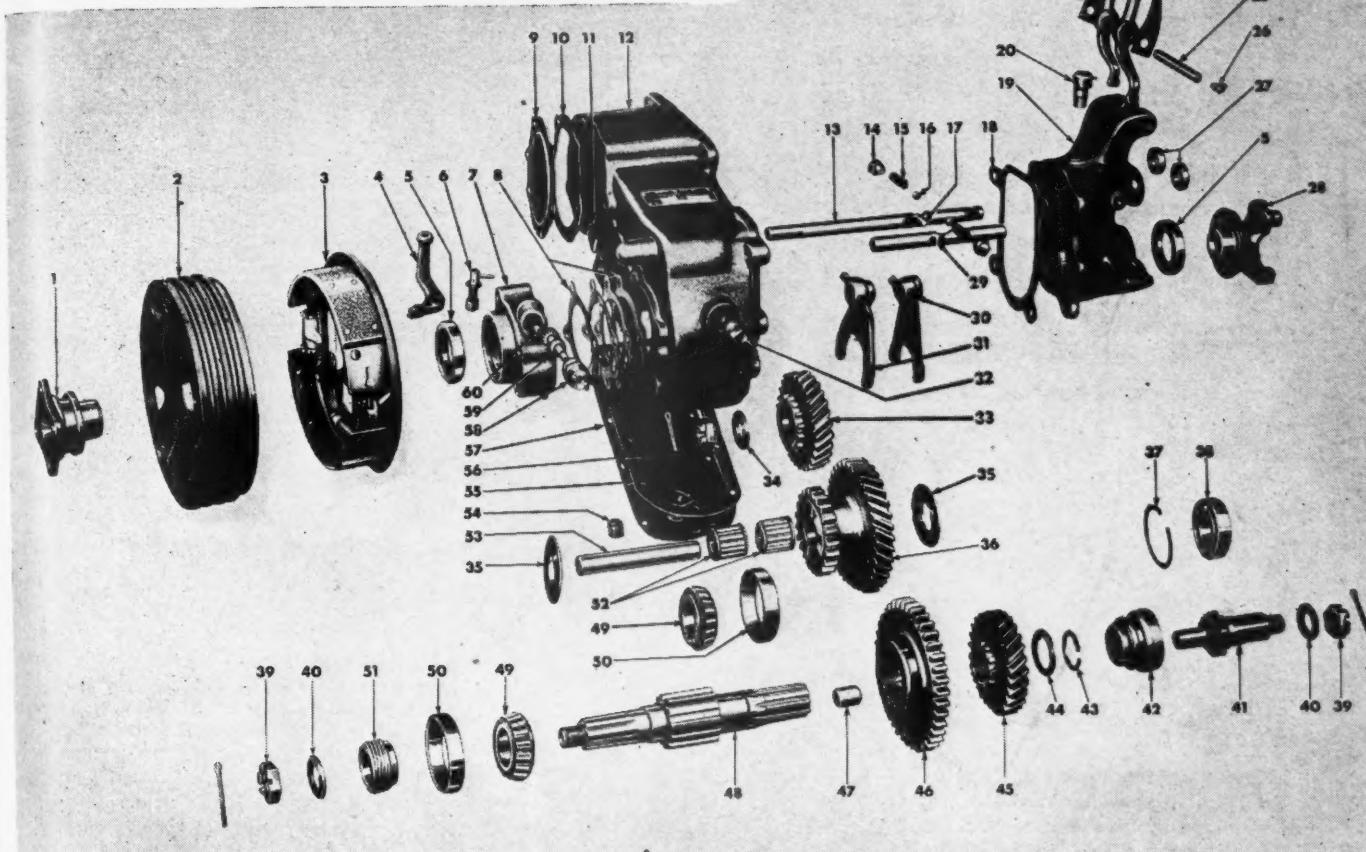
Studebaker's first gasoline model was this 1904 touring car. It had a seating capacity of five, and was equipped with a two-cylinder, 16 horse-power engine.



1. L
2. H
3. H
4. H
5. C
6. B
7. C
8. C
9. P
10. R
11. I
12. T
13. S
14. S
15. S
16. S
17. S
18. S
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25. S
26. S
27. S
28. S
29. S
30. S

JULY

WILLYS JEEP



Transfer Case Disassembly

Details of the disassembly of the Jeep transfer case described by BOB TURNER

- 1. Universal Companion Flange Assembly—Rear
- 2. Hand Brake Drum
- 3. Hand Brake Assembly
- 4. Hand Brake Lever
- 5. Output Shaft Oil Seal
- 6. Brake Operating Lever Screw
- 7. Output Shaft Bearing Cap—Rear
- 8. Output Shaft Bearing Shims
- 9. Rear Cover
- 10. Rear Cover Gasket
- 11. Intermediate Shaft Lock Plate
- 12. Transfer Case
- 13. Front Wheel Drive Shift Rod
- 14. Shift Rod Poppet Plug
- 15. Shift Rod Poppet Spring
- 16. Shift Rod Poppet Ball
- 17. Shift Rod Interlock
- 18. Output Shaft Bearing Cap Gasket—Front
- 19. Output Shaft Bearing Cap—Front
- 20. Transfer Case Breather Assembly
- 21. Shift Lever Spring
- 22. Front Wheel Drive Shift Lever
- 23. Shift Lever Handle
- 24. Underdrive Shift Lever
- 25. Shift Lever Pivot Pin
- 26. Shift Lever Pivot Pin Grease Fitting
- 27. Shift Rod Oil Seal
- 28. Companion Flange Assembly—Front
- 29. Underdrive Shift Rod
- 30. Front Wheel Drive Shift Fork
- 31. Underdrive Shift Fork
- 32. Filler Plug
- 33. Main Shaft Gear
- 34. Transmission Main Shaft Washer
- 35. Intermediate Gear Thrust Washer
- 36. Intermediate Gear
- 37. Output Clutch Shaft Bearing Snap Ring
- 38. Output Clutch Shaft Bearing
- 39. Companion Flange Nut
- 40. Companion Flange Nut Washer
- 41. Output Clutch Shaft
- 42. Output Shaft Clutch Gear
- 43. Output Shaft Gear Snap Ring
- 44. Output Shaft Gear Thrust Washer
- 45. Output Shaft Gear
- 46. Output Shaft Sliding Gear
- 47. Output Clutch Shaft Pilot Bushing
- 48. Output Shaft
- 49. Output Shaft Bearing Cone and Rollers
- 50. Output Shaft Bearing Cup
- 51. Speedometer Drive Gear
- 52. Intermediate Gear Bearing
- 53. Intermediate Shaft
- 54. Transfer Case Drain Plug
- 55. Transfer Case Cover Gasket—Bottom
- 56. Transmission Main Shaft Nut
- 57. Transfer Case Cover—Bottom
- 58. Speedometer Driven Pinion Sleeve
- 59. Speedometer Driven Pinion
- 60. Speedometer Driven Pinion Bushing

THE transfer case used on the Willys Jeep is essentially a two-speed transmission providing a low and direct drive gear to transmit power to the front axle.

To remove the transfer case from the car it is necessary to remove the transfer case and the transmission as a unit.

First disconnect the speedometer cable from the fitting at the transfer case. Remove the hand brake cable from the brake operating lever at the rear of the transfer case. Place jacks under the engine and transmission and remove the nuts holding the rear mounting to the frame cross member. Next take out the transfer case snubbing bolt nut at the cross member. Remove the gear shift remote control rods at the transmission.

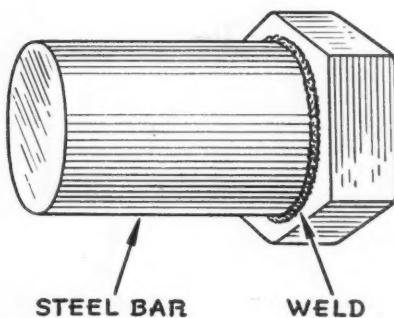
(Continued on page 70)

Here's your chance to pick up a little extra money. We'll pay five bucks (\$5.00) for every Shop Kink accepted and printed. So send 'em in to us—some short cut you use in doing a job easier and faster than the other fellow—some special tool you made when you couldn't buy one to do the job—and we'll do the rest. Incidentally we won't accept any that have previously appeared in any other automotive publication. Send 'em in!

SHOP

Wheel Puller

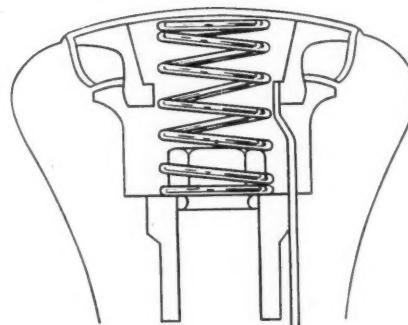
Recently when I needed a knockout wheel puller and couldn't obtain one, I made one by taking a rear axle nut and welding to it a piece of shafting the diameter of the nut and approximately one inch long. This worked perfect.—Cliff's Auto Shop, RR 5, Elkhart, Ind.



Pressing Out Pin

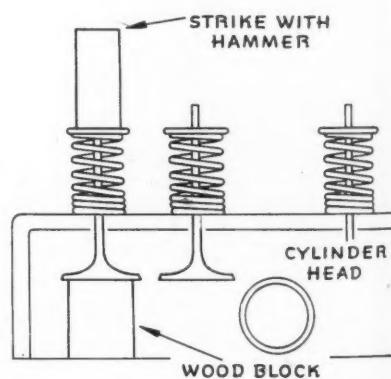
When pressing the universal joint pin out of the drive shaft on Dodge and Plymouth, it is almost impossible for one man to hold the shaft and pull the housing back from the pin so it can be pressed out.

To make the job easy I take a wrought washer with a 1-inch hole and cut a section out as shown. Slip the washer over the shaft back of the ball, and it holds the housing out of the way of the press ram.—A. H. Wild, Wild Brothers, Springfield, Minn.



Removing Valve Stem Locks

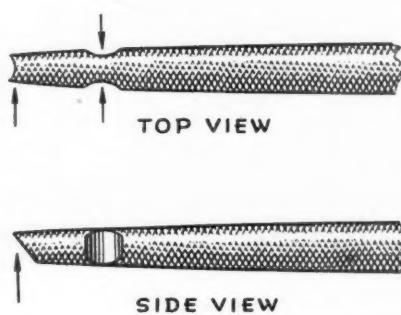
When removing the locks from the valve stems on Chevrolet cars, we place a block of wood under the valve, and a deep spark plug socket placed over the end of the stem and against the valve keeper. Strike the socket a sharp blow with a hammer, and the keys jump out. The socket prevents the keys from being lost.—Charles M. Griffin, Bob's Std. Service, 3401 Belt Line Hy., Robbinsdale, Minn.



Sticking Horn Buttons

We have experienced considerable trouble with the prong-type horn button on Chevrolet cars sticking.

To cure this condition, we take the wheel cylinder spring from a brake repair kit and cut off about 1 inch. Then install the spring under the horn button and the trouble is remedied.—Porter Bakken, c/o Harms, Rofinot Chevrolet Co., E 1507 13th Ave., Spokane 10, Wash.



Valve Key Tool

I have made a very satisfactory tool for inserting valve keys.

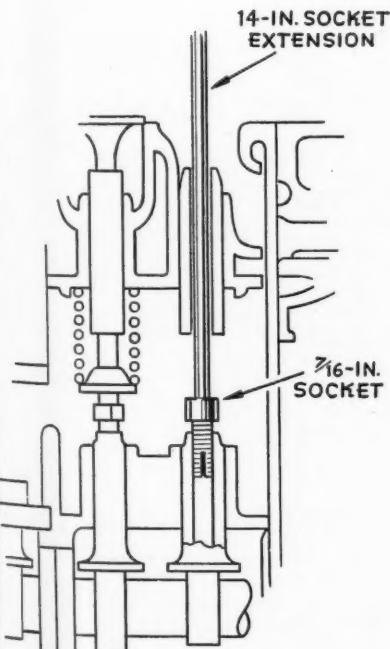
I use a ten inch rat tail file, and grind the sides and the end as shown in the sketch. Then I magnetize the file with either a magnet charger, or by winding about 20 turns of wire on the file, and shorting the ends on the terminals of a battery. On the inside of the keys, I put a small amount of grease, then hold the key in one of the grooves in the file and slip the key in place.—Arthur G. Matthews, Rockford R 3, Mich.

KINKS

\$5

Replacing Tappet Screws

To replace worn tappet screws on Chrysler cars—use Chrysler part No. 681544. These are self-locking and will fit all Chrysler 6-cylinder Dodge, DeSoto and Plymouth motors back to 1935.



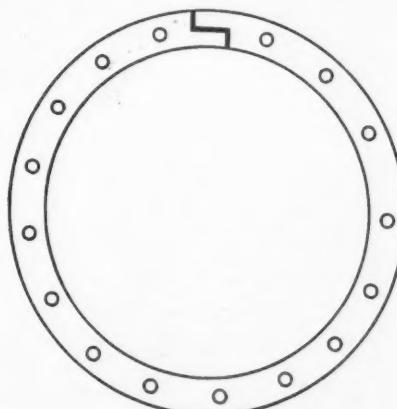
To install them use a $\frac{1}{4}$ -in. drive ratchet, 14-in. extension through valve guide and a 7/16 socket ground short enough to go between screw and valve guide.—*Wesley R. Headley, c/o B & Y Motors, 700 N. Meridian, Puyallup, Wash.*

Protects Shaft

When installing connecting rods on Chrysler built cars and pistons are being tapped down, there is a tendency for rods to bounce back and forth and bolts sometimes will nick shaft causing groove in bearings on account of threads being hard. I use short rubber tubing to slip on bolts. Tape can also be used.—*J. O. Hanson, Rear 213 W. 9th St., Sioux Falls, S. Dak.*

Gasket Installation

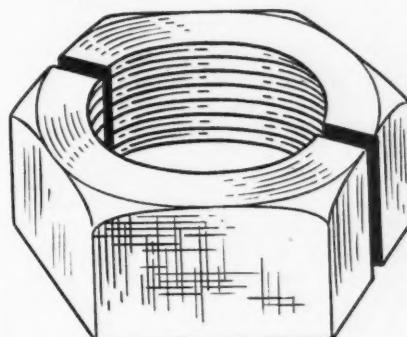
When we get a job with the differential carrier gasket leaking, we drop the rear end of the drive shaft and remove the cap screws that hold the carrier to the axle housing, after



draining the lubricant. This will allow the carrier to come forward far enough to remove the old gasket, and install a new one which has been step cut at the top.—*R. G. Dasse, 21 Grant St., Burlington, Vt.*

Rethreading Tool

Not having a rethreading die on hand to rethread an axle shaft, I made up a home-made tool by cutting a nut in half, slipped it over the battered thread on this axle and with a 12-point open end wrench start turning nut off axle which answered my purpose. I have made several sizes of these nuts, cut them in half, had them case hardened and they work out fine.—*Edward Sladec, 5053 Berenice Ave., Chicago, 41, Ill.*



Gasket Leak Detector

We have made a fitting which makes it very easy to determine around which cylinder a head gasket is leaking.

We took an old spark plug shell and brazed an old tire valve in the top. By screwing this fitting in place of the spark and applying air pressure to the valve, the air will be forced up through the water in the radiator and the cylinder quickly located.—*Harold S. Smith, 123 4th St., N. W., Olewin, Iowa.*

SALES

The MOTOR

MOTOR AGE For

NSPA Executive Groups Schedule Three-Day Conferences at Indiana

Officers, directors and committee-men of the National Standard Parts Association will meet June 19, 20 and 21 at the French Lick Springs Hotel, French Lick, Indiana, for the organization's annual summer executive conference. These boards and committees will be in session:

JUNE 19: Marketing Research Committee, Membership Committee, Replacement Parts Committee, Shop Equipment Committee, and Accessories and Supplies Committee.

JUNE 20. Wholesalers' Board of Governors, and Manufacturers' Board of Governors.

JUNE 21: Board of Directors and International Trade Committee.

This will be the second of three such NSPA executive forums which are a part of each year's program. The first 1946 conference was held in January and the final meeting series is scheduled for a three-day period immediately preceding the convention which is scheduled for December 6 and 7 in Atlantic City, N. J.

At the mid-year conference the association's committees and boards will review progress made during the first half of 1946 including operations

of a recently created personnel relations department.

Plans for improving techniques and procedures in automotive distribution will occupy much of the attention of several committees, particularly the Marketing Research group which deals exclusively with subjects relating to management and merchandising. The Membership Committee, in its full day session, will consider the membership applications of a lengthy list of wholesaling and manufacturing firms. Problems of reconversion will be on the agendas of the divisional boards and the Board of Directors.

Meeting on the final day of the conference, the association's International Trade Committee will discuss plans for serving a rapidly growing group of NSPA members in Latin America and for improving trade relations in all parts of the world.

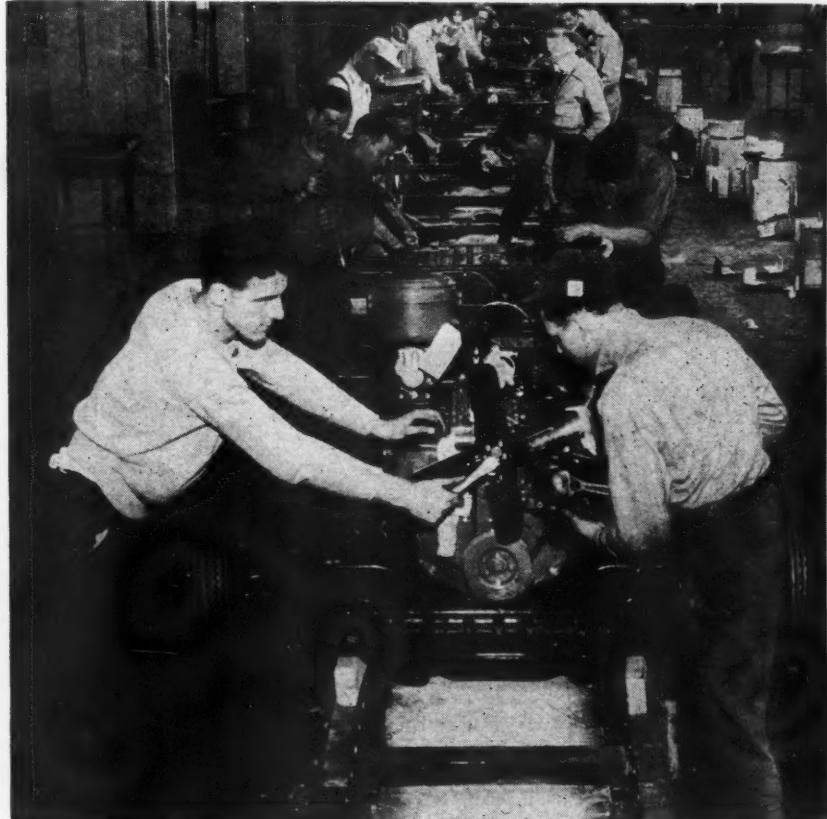
Graham-Paige Plant Sold to Chrysler Corp.

Sale of the former Graham-Paige Motors Corporation's plant located at Dearborn, Mich., to the Chrysler Corp. for \$2,750,000 was announced recently by Joseph W. Frazer, president of Graham-Paige.

The factory was vacated by Graham-Paige last November when the corporation moved its manufacturing facilities to the huge Willow-Run plant at Willow Run, Mich., which it now occupies jointly with Kaiser-Frazer Corp., and where Kaiser and Frazer automobiles and Graham-Paige's line of farm implements will be produced. The sale was negotiated by John L. Cotter, vice-president of Graham-Paige.

Erected in 1927, the former Graham-Paige plant includes approximately 46½ acres of property near the Detroit-Dearborn line, on which are situated administrative, manufac-

(Continued on page 74)



Shown above are chassis for the Frazer cars being assembled at the Kaiser-Frazer Willow Run plant. First completed cars, according to the announcement, are scheduled to come off the line the end of June.

Ford Motor Co. to Observe 43rd Anniversary

The Ford Motor Co. will observe its 43d anniversary June 16. On that date in 1903, articles of incorporation were filed with 12 stockholders and capital stock of \$100,000 of which \$28,000 was in cash. Henry Ford became president of the company in 1906 and the Ford family acquired the interest of minority stockholders and sole ownership of the company in 1919.

R AGE NEWS

JUNE, 1946

a b c d

SERVICE

Stout Discloses Details Of "Car of the Future"

William B. Stout, automotive and aircraft designer, has disclosed details of his newest vehicle, which he calls "the car of the future." Embodying the designer's ideas of possible future developments, the car has a body constructed of Fiberglas plastic, rear engine drive, no chassis or axles, air springs, extra long wheelbase, and more interior room than any other car of comparable outside dimensions.

Called the "Stout Forty-Six," the new car is an outgrowth of the "Scarab," a vehicle of unconventional design which Stout built several years ago. It has a body of Fiberglas plastic, a material fabricated of glass fiber impregnated with a resin under high heat and pressure. The designer says the material has an impact strength 10 times that of steel and a tensile strength of 300,000 psi. Except for the doors, the entire body, including floor, roof, sides and ends is molded in one piece. The interior of the body measures 6 ft. wide and 11 ft. long. The driver's seat is located a little left of center and is adjustable forward and back. A 6-ft. couch that can be made up into a Pullman style bed forms the rear seat. In addition there is room for two or more movable reclining typ chairs. The interior is carpeted and luxuriously upholstered. The windshield is of curved design, with the

(Continued on page 72)



Charles Snyder (left) of York, Pa., and John Van Benschoten (right), of Poughkeepsie, N. Y., have been selected as auto dealer representatives to be honored at the Automotive Golden Jubilee in Detroit.

Two Dealers to be Honored at Golden Jubilee Celebration

John Van Benschoten, Dodge-Plymouth dealer of Poughkeepsie, N. Y. and Charles Snyder, Hudson-White dealer of York, Pa. have been selected as auto dealer representatives in the Automobile Hall of Fame for the Automotive Golden Jubilee to be celebrated in Detroit from May 29 through June 9, according to an announcement made by Lieut. Gen. William S. Knudsen, national industry chairman. The two dealers will be honored at the Jubilee banquet at the Detroit Masonic Temple.

Selection of Van Benschoten and Snyder is a tribute to the 35,000 dealers and the part they have played in the building of the industry.

Numerous activities have been planned for the Jubilee celebration including parades, pageants, exhibits, decorations, awards for old cars and trucks, honoring of oldest pioneers and dealers, banquets and other events.

H. O. Keller, of Reading, Pa. and A. L. Newton, New York City, have been selected for membership on an Honorary Automotive Pioneers committee, a group composed of representative pioneer members of the automotive field.

Van Benschoten, champion bike racer of the past century once sold bicycles, but later went into the automobile business. He had handled more

than 36 makes of cars during his long career. An active member of NADA since its inception, he is a past president of the New York state Auto Dealers Assn., and is a member of Automobile Old Timers.

Snyder, who heads the Snyder Automobile Co. began his career in the automotive field while in his teens and is in his 48th year of business. With his brother, Jacob, the Snyder Cycle and Automobile Co. was organized. He has represented at one time or another Locomobile, Oldsmobile, Reo and the Chalmers.

Other communities across the country will also take part in the Golden Jubilee celebration, it has been reported. Exhibits of old models will be featured in the events. Screen, radio and opera stars will also appear in Detroit to aid in the festivities.

James Melton, well-known singing star, will lead the parade of 100 old cars which are to drive from New York to Detroit, re-enacting the historic Glidden tour. A number of his ancient autos will take part in the event, Melton stated.

President Truman was said to have been considering a trip to Detroit to take part in the Golden Jubilee, following an invitation to attend but matters of national importance has prevented the president from making any plans.

Willys Announces \$21 Million Expansion Program

Willys-Overland Motors, Inc., has announced a \$21 million expansion program aimed at making the company a more self-contained unit with capacity for more than 300,000 vehicles a year. The plans include purchase of the Wilson Foundry Co. at Pontiac, Mich., which would provide castings, and allow the company to build a complete engine in both the four and six cylinder lines. Stamping facilities and assembly lines will be expanded, including a completely new line for six-cylinder engines, and plans also call for a modern body and trim shop. The West Coast assembly plant at Los Angeles will be reopened after being re-equipped for expanded production.

JUNE, 1946

41



CLEARING HOUSE

FOR SERVICEMEN'S QUERIES

Bill Toboldt, Editor, Motor Age

Brake Grab

I am having brake trouble with a 1940 Oldsmobile 6. The brake on the left rear wheel grabs. It did not do this until after I relined the shoes.

I used a good grade of lining, and the brakes were all right for about 2000 miles, and then the left rear started grabbing. I changed the brake drums, but left rear still grabs. I also flushed out the hydraulic brake system.

Finally I relined the shoes with a softer grade of lining. After another 2000 miles the same trouble returned, just as though there was grease on the lining. I have checked the lining and it looks perfectly clean, and the adjustment is right.—A North Carolina Subscriber.

THE description of the trouble has all the earmarks of grease on the lining. A loose backing plate, or a loose anchor pin, would cause a chattering noise but would not necessarily lead to brake grabbing. The fact that the brakes operate satisfactorily for a time after you work on them, and then start to grab, is a typical description of a condition brought about by grease on the lining. I have seen cases where simply handling the brake lining with dirty hands was enough to cause brake grabbing after the lining had been in service for a few thousand miles.

One thing you should do is to be absolutely certain that there is no grease leak at this rear axle shaft that will permit grease to come out on the brake backing plate. Also you check to see that the brake drum (not only the brake-lining contact area of the drum but the entire drum) is perfectly free from oil or grease. Also, you should be sure that, when new lining is installed, the contact surface is not handled. It is surprising how lit-

tle grease is required to develop a grabbing condition.

I suggest that you install new shoes and lining in this wheel, and that you check carefully the brake backing plate to be certain it is tight to the axle housing, and also that you carefully check the brake-shoe adjustment. These shoes should be adjusted so that there is .015 in. clearance between the

to use, also the size jet which was standard equipment. I would also like to know the float setting. This car is not driven over 50 m.p.h. I would also like to know if the automatic choke can be changed to open sooner. This car runs and idles well but the complaint is that it uses too much gas.—A Minnesota Subscriber.

THIS car was originally equipped with a Stromberg Model EE-1 carburetor and used a .048 main metering jet.

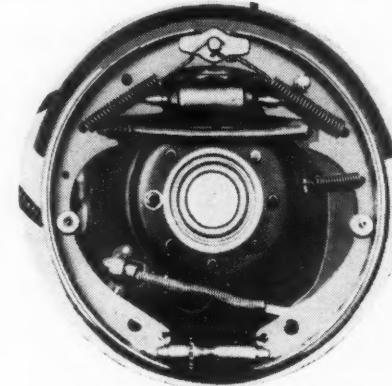
If you are sure that all the other factors contributing to gasoline consumption have been properly corrected and still you wish to obtain an increase in miles per gallon, I suggest you install a main metering jet size .044. The fuel level in the bowl of the carburetor should be 15/32 in. from the top edge of the bowl to the fuel, measured with the bowl cover off and the engine running.

When adjusting the automatic choke, first be sure that the link connecting between the choke operating lever and the choke valve in the carburetor is of the proper length to connect between the center hole of the lever on the choke, and the lever on the carburetor when both are in the full-down position. It may be necessary to bend this connecting rod to obtain the proper adjustment.

It is possible to increase the action of this automatic choke by turning out the metering pin located in the top of the choke unit.

Carburetor Trouble

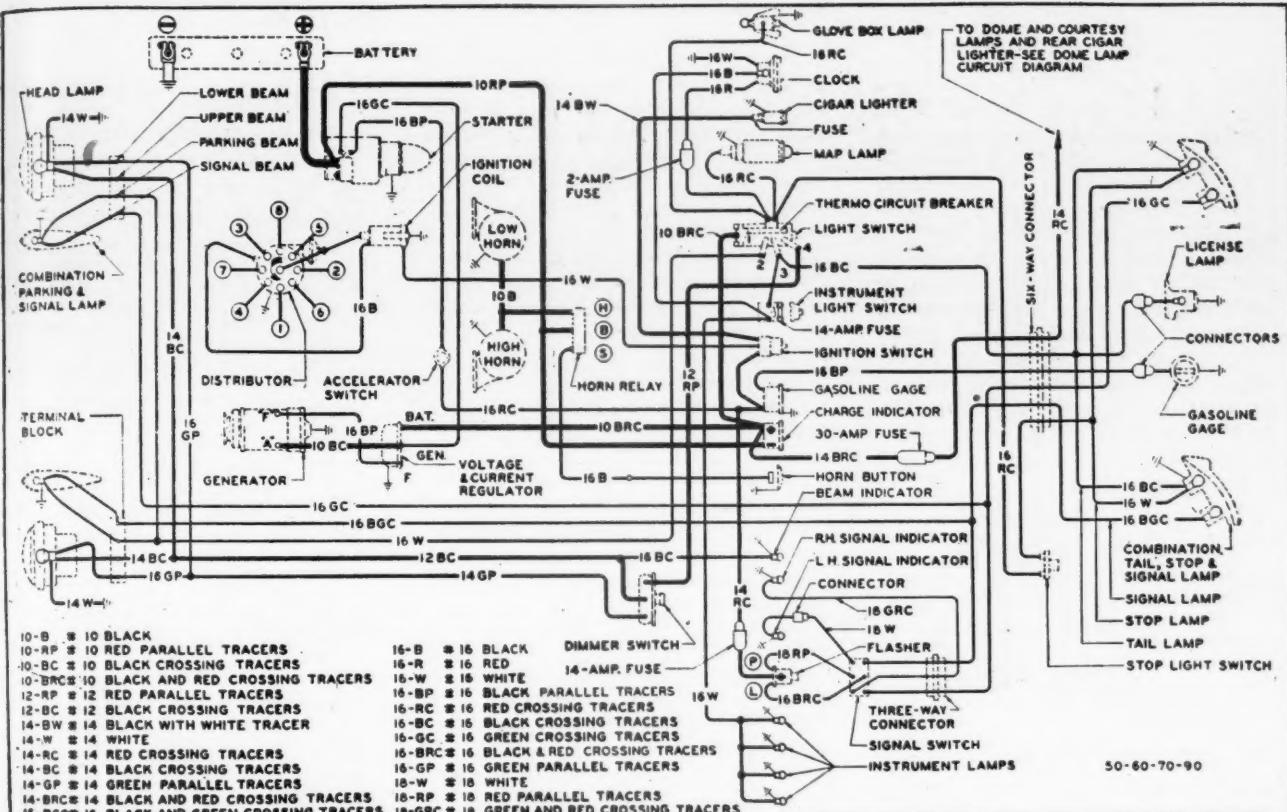
I have a 1936 Series 40 Buick on which I am having trouble with the carburetor. I would like to know if smaller jets will help save gas. Car is now giving about 12 to 14 miles per gallon. Other 1936 Buicks that I service go 17 and 18 miles per gallon. I would like to have the size of the smallest jet that would be practical



top and the bottom of the lining on the secondary shoe and the drum. This clearance is obtained by adjusting the anchor bolt. Then expand the adjusting wheel in between the two shoes until the shoes contact the drum so that it takes two hands to turn the wheel over. Then back off the adjusting wheel approximately 20 notches so that the shoes are free of the drum.

Slides Out of Second

We are having considerable trouble with a 1941 Dodge WF32 1½-ton truck sliding out of second gear. Transmission was OK, except that it was noisy. To correct this condition, we replaced cluster gear and shaft, low and reverse and second and high sliding gears, main shaft and all



1946 Buick Wiring Diagram, Models 50-60-70-90

transmission bearings which took care of noise, but now owner cannot hold in second gear on hard pull even when holding shifter lever. Interlocks are OK and shifter fork is not bent. We have checked and all gears mesh fully and run true. Any suggestions you may have and an early reply will be greatly appreciated. — E. Ringle, Ringle Auto Service, Edgar, Wis.

AFTER carefully studying the trouble you are experiencing with the 1½-ton Dodge truck I think you will find the trouble to be caused by misalignment between the transmission and the flywheel housing. Quite possibly the gasket you are using is of the wrong thickness, you also may have pulled up the cap screws unevenly so as to slightly spring the housing.

There is also a possibility that the shifter forks are sprung so that the gears are not fully in mesh when in second gear. I would suggest you check these points carefully, and I am quite sure you will be able to locate your trouble.

Carburetor Cleaning

I am having trouble with '37 and '42 Chevrolet carburetors. Am not able to get enough fuel to motor at high speed. Have changed intake and discharge jets. One is marked 62 and the

other is not marked. I have drilled this one out with very poor results. With the choke out one-half inch the car runs fine. I even replaced fuel pump plunger. I would like to know what is wrong with these carburetors. They idle perfectly. One motor has just had new rings installed and is in very good shape. I have two 1941 and two 1937 Chevrolets which act the same way. I would like to know if it would help to clean these carburetors in a cleaning compound.—John's Garage, W iota, Iowa.

I AM very much interested in the trouble you are experiencing with the carburetor and fuel supply on Chevrolet cars. I am wondering if possibly you have what is known as the "fleet economy" model which is equipped at the factory with smaller than standard jets in order to insure the maximum fuel economy. In 1937 they used a Model 358-S economy; in 1939 and 1940 there was a 434-S used on the economy model and in 1941 and 1942 the economy model was fitted with 492-S carburetor.

I would suggest that you carefully check this point and also once more completely dismantle the carburetor, and clean it in some of the special cleaning fluids which are available or use acetone so as to be absolutely sure that all the jets and passageways are clean. After reassembling, adjust the

carburetor and metering rod in accordance with factory instructions such as given in the Motor Age Flat Rate and Service Manual. If the trouble continues, I would suggest you check and examine the spark plugs to make sure they are the proper heat range and also that the porcelains do not have a burned appearance. I would also suggest you make a careful check for any intake manifold leaks which would, of course, also cause the trouble you are experiencing.

Transmission Trouble

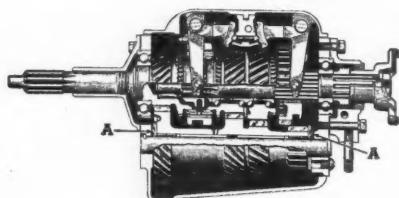
I have a 1940 Packard Six, Model 1800, with overdrive. I bought the car new. I am having trouble with the transmission. I decided not to do anything with it until I heard from you, as I think it is an unusual trouble.

All I did with it was to check the steering wheel gear shift for adjustment of the levers at the bottom of the steering post. The adjustment is perfect. Also I tightened all bolts and nuts on the lever at the transmission. My trouble comes in when I try to shift from first to second.

The steering wheel gear shift lever goes into neutral, as it should, from first, but the transmission is still in first and the gear shift lever will not move into second. This has been going on for a long time but happened

only once in a great while. Now it happens any time at all, and I would say on an average of about every second time I shift. I have no trouble at all shifting except the shift from first to second. The only way I can get the car into second is to keep pulling the lever back from the neutral position to first, and trying again to get it through neutral from first into second. Usually one time works, but sometimes I have to try this two or three times before I get into second.

I would like to know if there is any cure for the clutch grabbing in reverse. Unless you are very careful, the rear wheels seem as though they are coming off, especially when reversing on a hill.



One more thing. When I am going along at about 25 or 30 m.p.h., sometimes even 35 m.p.h., for a while and then accelerate to a speed of about 40 or 45 m.p.h., the car hesitates as though it is out of gas and then picks up. This carburetor was boiled out and some jets changed. And it seems to me this trouble came in after the cleaning. (I didn't do the cleaning job.) I believe the high-speed jet was changed to one step leaner.—An Illinois Subscriber.

BELIEVE the shifting trouble you are having with your 1940 Packard is due to improper shift-lever adjustments, or to the fact the clutch plate is dragging.

First of all, check the shift linkage for looseness, then carefully go over all linkage adjustments, according to factory instructions. Check clutch for dragging and adjust clutch pedal clearance.

A chatter in a clutch when backing up can come from a number of things. I would check the motor mountings for wear and also for oil-soaked condition. Also make sure there is no broken clutch-plate springs, or oil on the clutch facings.

A lean mixture will make a car hesitate, as you say. I would suggest you install the original high-speed jet, then carefully check float level and other adjustments.

Increasing Speed

For sometime before the war and at present I have been trying to find a way to speed up or "soup up" a Chevrolet. I have found gratifying results as far as pickup is concerned by installing two regular Chevrolet carburetors on the intake manifold,

and by planing the cylinderhead from $1/16$ to $3/16$ of an inch; however, no appreciable increase in top speed was gained by this combination. I have also found a slight increase (3 to 4 m.p.h.) in top speed by using the 39 Standard model ring gear and pinion which has about a 3.7 to 1 ratio as compared to about 4.1 to 1 in Deluxe Model Chevrolets.

I have often inquired from jobbers if any concern manufactured a supercharger for Chevrolets as are made for Fords, but have always received blank answers. It will be appreciated if you can furnish me with this information and also any other way to speed up late model (40-46) Chevrolets.

Perhaps you may present my problems to your readers. Surely I am not the only one in the country who ever wanted a little more soup out of a Chevrolet.—Joe M. Brown, 103 West 31st St., Austin, Texas.

I AM surprised that you do not find any increase in top speed when you installed two carburetors and increased the compression ratio by planing $3/16$ in. from the cylinderhead. When you did this, did you change the spark timing? In general, it is necessary to slightly retard the spark over standard setting when the compression ratio is increased. If you have not done so I would suggest you try this to see if it does not improve the top speed.

It is quite possible that with modern fuels that you are not getting any pinging with the increased compression ratio; however, it is still advisable to try some different spark settings until you find one that gives you the maximum top speed. I would also recommend checking the carburetor settings so as to be sure you are getting ample fuel at high engine speed. You will find that it is necessary to have a relatively rich mixture to obtain maximum top speed. The rich mixture is beneficial not only in supplying more power, but also reducing the tendency toward pinging.

In regards to the supercharger, you might write to Borg-Warner Superchargers, Inc., Division of Borg-Warner, 3420 W. Capitol Drive, Milwaukee, Wis., to see if they have a supercharger suitable for use on your engine.

If you have not already done so I would suggest you try stronger valve springs so as to eliminate the possibility of valve flutter at high speeds. In many cases an increase in top speed of two or three miles per hour is noted with stronger valve springs. I would also suggest that you use a stronger spring on the breaker arm so as to reduce the possibility of the points bouncing. Further in connection with the distributor, I would suggest you check this unit on a distributor test fixture to make sure the dis-

(Continued on page 48)

BUTCH . . .

BOSS CAN I HAVE THE AFTERNOON OFF TO ATTEND MY GRANDMA'S FUNERAL?

I THOUGHT SHE DIED LAST YEAR?

THIS IS MY OTHER GRANDMA!

I THOUGHT SHE DIED YEAR BEFORE LAST?

SO SHE DID, BUT GRANDPA MARRIED AGAIN!

I WANT YOU TO FIX DOC'S CAR THIS AFTERNOON, SO YOU WON'T NEED THIS TICKET TO THE BALL GAME!

... AND IF IT ISN'T FIXED WHEN I GET BACK I'LL TAKE OFF ANOTHER AFTERNOON TO ATTEND YOUR FUNERAL!

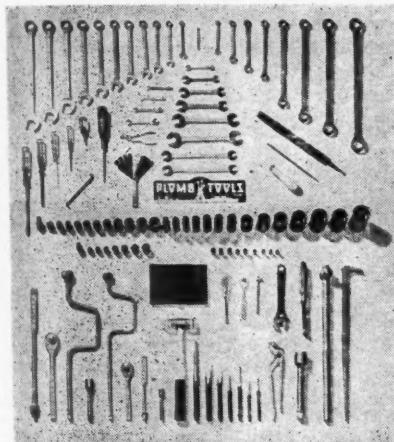


NEW PRODUCTS

Selected Tool Sets For Veterans Announced

Two specially selected tool sets, obtainable free by war veterans employed under the Government's Apprentice Training Program, have been announced by the Plumb Tool Co., 2209T Santa Fe Avenue, Los Angeles 54, California.

An ex-G.I., serving as an apprentice, is allowed up to \$100 worth of tools when approved by the local Veterans' Administration Office. The two tool sets offered by the Plumb Tool Co. were prepared after a care-



ful study of the needs of apprentice mechanics. The sets are only suggestions, however, and the veteran may make his own tool selections.

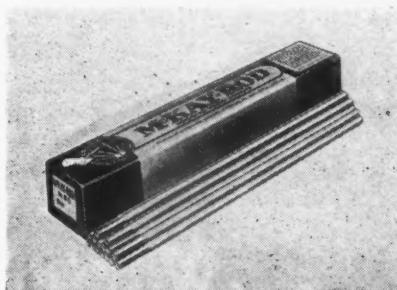
One set, retailing at \$100, is designed for shops making light and heavy repairs. It contains 113 items, including $\frac{3}{4}$ in. drive sockets and several large wrenches. The other set, retailing at \$49.99, contains 60 items used most in the average shop and will handle practically all jobs encountered in the early training period.

K-D Lamp Adds Product

The K-D Lamp Company announces that it has added Polarized sun glasses and the Willsonite line of sun glasses to its list of Saftee products now available to automotive jobbers and dealers. Both type glasses are available in a variety of styles, assortments and prices. K-D Polarized Saftee sun glasses reduce fatiguing road glare and help to make driving a pleasure. Willsonite Sun Glasses are nationally advertised.

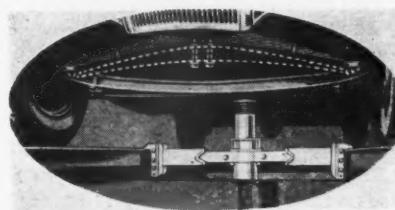
Welding Electrodes for Small Quantity Users

The McKay Co. of Pittsburgh, Pa., announces a line of shielded-arc welding electrodes especially designed, packaged and merchandised for small quantity users who need general utility welding rods.



The three McKay-Rod types—M-1, M-2 and M-3—have properties which make them suitable for almost any normal weld-repair job. All McKay-Rod types work on AC and DC welding equipment. The M-1 is recommended for general welding and for welding frames, truck bodies, agricultural implements, etc. The M-2 is used for welding light-gage metal, bodies and fenders and for other welding of light sheet-metals. The M-3 for welding cast-iron, is recommended for water-tight welds on motor blocks and cylinder heads and for light and heavy casting repairs.

For additional information and literature on McKay-Rods, write The McKay Co., 1005 Liberty Ave., Pittsburgh 22, Pa.



Wayne Pump Co. to Produce "Pitlift Jack"

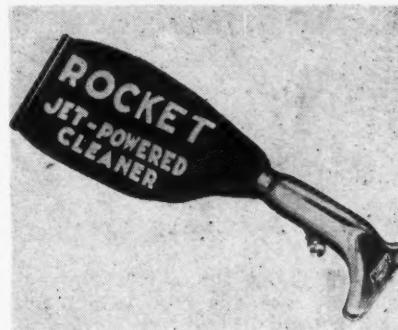
The Wayne Pump Co., Fort Wayne, Ind., announces that it has been granted an exclusive license for the manufacture and sale of the "Pitlift Jack." Manufacture of the jack will progress as rapidly as conditions permit.

New Vacuum Cleaner For Car Upholstery

The "Rocket Jet Powered Vacuum Cleaner," a new device for speedy vacuum cleaning of car upholstery and carpets, is now offered by Management and Research, Inc., 7038 Garrett Road, Upper Darby, Pennsylvania.

The new vacuum cleaner operates on compressed air and has no moving parts to get out of order. Attached to the ordinary compressed air line, it is said to thoroughly clean the interior of the average car with little more air than is required to inflate a set of tires.

Designed as a handy, compact cleaning tool for service stations, repair shops, and car dealerships, the "Rocket Jet Powered Vacuum Cleaner" weighs only $1\frac{1}{2}$ lb. and has an overall length of 18 in.



New Soft-Faced Hammer

A soft-faced hammer, to speed up construction, repair, and metal-working operations on surfaces that must not be marred, is described in a bulletin (BE-12) just released by Greene, Tweed and Co., Bronx Blvd., 238th St., New York 66, N. Y.

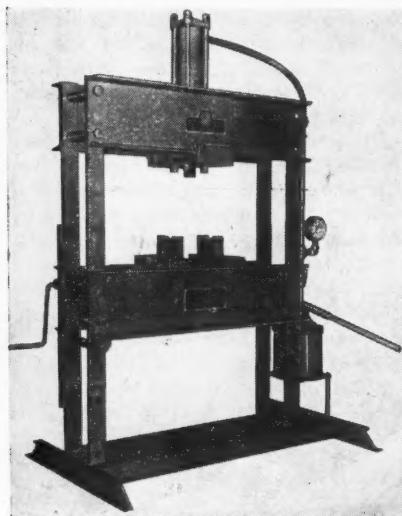
Feature of the striking tool, known as the "Basa Hammer," is an exclusive, split-jaw construction permitting speedy replacement of the faces. The bulletin describes the new replaceable Basa faces which do not shrink, expand, chip or disintegrate and are not affected by chemicals.

Bulletin BE-12 gives list prices for the complete hammer and also for sets of replaceable hammer faces of plastic, copper, and babbitt, as well as the new Basa material. List prices and specifications for Empire Plastic Mallets designed for light work, are also included.

New Products

"Rodgers Sixty" Shop Press Announced

The "Rodgers Sixty," a new shop press of 60-ton capacity, is announced by Rodgers Hydraulic, Inc., Minneapolis, Minn. Power is supplied by a Rodgers two-speed, hydraulic, hand pump which, in high speed, moves the ram $2\frac{1}{2}$ in. per pump stroke, giving up to 2000 lb. pressure in fast travel. The hydraulic cylinder rests on rollers which ride the flanges of the upper bolster, and may be moved across the entire working width of the press.



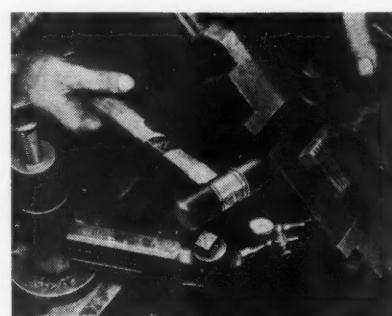
Ram travel is a full 13 in. at a continuous stroke due to the long cylinder. Flexibility of the press is achieved through adjusting the lower bolster by means of a hand crank. Maximum opening between bolsters is 38 in., minimum is 8 in. A special model with an opening range from 8 in. to 48 in. is also available.

A machined and matched pair of V-blocks is furnished as standard equipment. Also available are special attachments for ring-gear riveting, and for aligning and centering shafts, rod, etc., and an adjustable end-support stand for handling long material.

Plastic Hammer Offered

A new hammer with a double-head of hard plastic called "Castex," said to be unbreakable, has been announced by the Schmidgall Manufacturing Co., 307 Cass Street, Peoria 2, Ill. Designed especially for automotive and other repair shops, the new hammer will not mar, dent or blemish flat

metal surfaces. The die-cast, non-breakable head is fireproof, acid-proof, and non-conducting. The base of the head is machined from special lightweight, aluminum alloys, and securely fastened to the handle, but interchangeable. The handle is high-grade hickory.



The "Kant-Mar" hammer is guaranteed for life. Each hammer is registered with the manufacturer and will be put in good condition at any time for \$0.50 to cover handling and mailing costs. The hammer is made in three sizes, the $1\frac{1}{4}$ in. size sells for \$2.50 list.

Tweco Products Announces Line of Electrode Holders

A new line of arc-welding electrode holders, known as "Twecotong" Electrode Holders, have been announced by the Tweco Products Co., Wichita 1, Kansas. The new line features full - insulated and semi - insulated models.

Although a conventional tong-type holder, "Twecotong" features molded-laminated, glass-cloth, bakelite insulation keyed to the holder casting. The tensioning spring seats firmly on fiber upset washers and is protected from spatter by non-binding Neoprene tubing. Cool running of the holder is assured by a well-ventilated fiber handle together with a good cable connection. All parts are replaceable.

The full insulating Twecotong models are known as No. A-14, 300 amp., $\frac{1}{4}$ in. electrode capacity; No. A-38, 500 amp., $\frac{3}{8}$ in. electrode capacity.

The semi - insulated models are known as No. B-14, 300 amp. $\frac{1}{4}$ in. electrode capacity; No. B-38, 500 amp., $\frac{3}{8}$ in. electrode capacity.

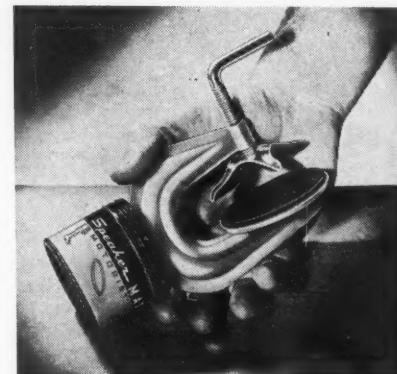
Further information, together with price and parts list, is included in the 1946 Twecolog available from the manufacturer.

New Style Vulcanizer

A new style vulcanizer designed for the average motorist has been announced by the J. W. Speaker Corp., Milwaukee 12, Wisconsin. A compact, self-contained unit, the vulcanizer enables any motorist to make vulcanized tube repairs in his own garage or wherever stranded with a flat tire.

Known as the "M-3 Match Patch Emergency Kit," the vulcanizer is made entirely of steel with a rubber cushion to provide upward counter pressure that assures feathered-edged repairs.

Each kit is complete with a can containing instructions, a buffer, three "Match Patches," heat units, and metal pans. Each "Match Patch" is triple sealed in cellophane and wax.



Aimed especially at owners of four-tire new cars and motorists whose old rubber is ready to blister in summer heat, the kits are packaged to retail from service stations, car dealers, and independent garages at 65 cents each.

New Light-Duty Blind Rivet "Gun" Announced

An inexpensive, light-duty blind rivet "gun," the "Cherry Jr. Riveter," has been added to the Cherry line of blind riveting tools.

The Jr. Riveter is a one-hand plier-like tool that installs the rivet with a simple "pull." It is made especially for the many small fastening jobs arising constantly in any shop. The new riveter installs a new 3/32-in. diameter blind rivet, provided in three grip lengths. The rivet is the tight-clinching, pull-through hollow type with generous shank expansion.

For further information, write the Cherry Rivet Co., 231 Winston Street, Los Angeles 13, California.

*UP HILL AND DOWN DALE
AT THE TERRIFIC PACE OF . . .* **13 MILES PER HOUR!**



In 1905, a Cadillac advertisement in Munsey's Magazine stated: "Mr. _____, an auto novice, drove a Cadillac containing three passengers from New York to Waterbury, Conn., 93 miles, at an average speed of 13 miles an hour without a stop. --- a typical CADILLAC performance."

In 1905 that was PERFORMANCE. In 1946 you will find efficient enduring performance an outstanding feature of all . . .

AIRTEX

*Factory
Tested* FUEL PUMPS

Parts used in the manufacture of AIRTEX Fuel Pumps are made with great care. On some, tolerances must be as close as one to two-thousandths of an inch. Certain parts are made of top grade chrome nickel steel, carefully heat treated to withstand wear. The life of a fuel pump depends upon the diaphragm and its proper assembly. AIRTEX diaphragm assemblies are absolutely gas-tight. AIRTEX diaphragms give unusually long service under continuous high speed flexings. Tests show that they do not fail after 65,000 miles, at a speed equivalent to driving at 75 miles an hour.

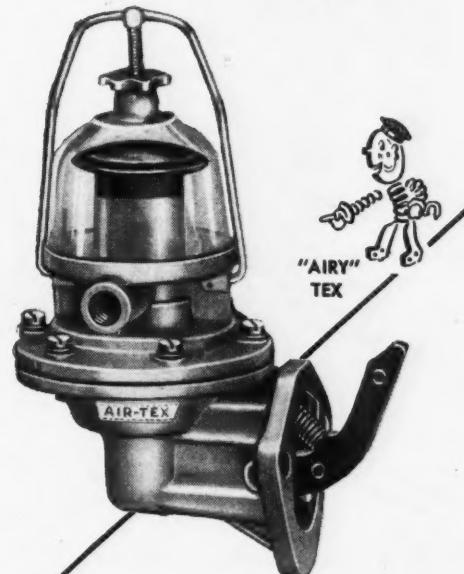
"Your profits climb with the AIRTEX Line"

AIRTEX AUTOMOTIVE CORPORATION, FAIRFIELD, ILL.

JUNE, 1946

When writing to advertisers please mention Motor Age

47



Assembled with
AIRTEX
Diaphragms, Guaranteed
for 50,000 MILES.



Readers' Clearing House

(Continued from page 44)

tributor cam opens the points at the same point in the cycle for each cylinder. It is not at all unusual to find that the distributor cam is worn so that one cylinder might be firing at top center while another cylinder would be firing two or three degrees before or after top center. Naturally, it is very important that the spark timing be uniform for each cylinder.

Dependent on the characteristics of the coil and distributor, slightly better

top speed is sometimes obtained by using a smaller breaker point gap so you might try this to see if you will get any better performance.

Further in connection with the distributor, make sure that you are getting correct amount of spark advance for different engine speeds. This, of course, involves checking the automatic advance springs and the automatic advance unit.

Of course, you want to be sure that

there is no undue friction anywhere in the chassis, and a slightly looser than standard adjustment on the front wheel bearings may prove helpful. Be sure the brakes are not dragging and that the clutch is not slipping. Lighter than standard lubricant in the transmission and rear should also prove helpful.

White Smoke

A couple months ago a customer of ours, who has a 1938 Olds Six, noticed all of a sudden a very light white smoke coming out of the tail pipe continually. The car used an excessive amount of gas and oil, so he had us put in new rings, expand the pistons, new connecting rod bearing inserts, and grind the valves. When we put the car back together and started the motor, it still smoked terribly, just as bad as before. Then we put a new fuel pump on the car, and that doesn't eliminate the trouble either. Now we don't know where to look for the cause of this smoke. We have been auto mechanics since 1920 and this stumps us. Never saw anything like this before.

Could you please give us a clue to the cause of the trouble?—E. J. Womack, Box 196, Mariposa, Calif.

I HAVE read with interest the trouble you are experiencing with a 1938 Oldsmobile. The fact that it is white smoke issuing from the tail pipe would seem to indicate that your trouble might be a water leak. As you know, oil in general gives a blue smoke whereas the steam resulting

(Continued on page 50)



THE WAYNE PUMP COMPANY FORT WAYNE 4,
INDIANA

(Advertisement)

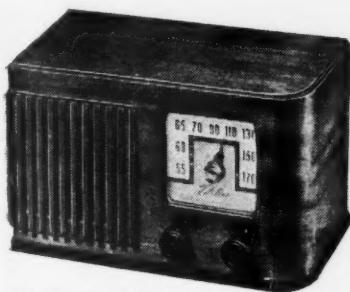


There IS Something New Under the Sun
See Pages 76 and 77

First in a great new line of Delco RADIOS

Here they are—the first models in Delco Radio's advanced new line. In them you see—and you'll hear—the best of all that's new in radio. Exciting new styling in a variety of cabinet models and materials—outstanding new performance, born of advanced engineering and design . . . these and other new features characterize this complete home line.

Watch for other new models still to come. They, too, will reflect Delco Radio's vast engineering experience as the long-time manufacturer of original-equipment auto radios for Chevrolet, Pontiac, Oldsmobile, Buick and Cadillac . . . the wartime manufacturer of vital military radios and electronic equipment for the armed forces. Yes, you'll get the best of all that's new with Delco!



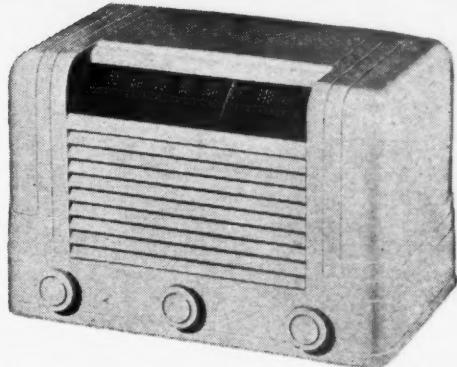
MODEL R-1232—
Wood, Walnut Finish.
5 Tubes (Including Rectifier). A.C.-D.C.



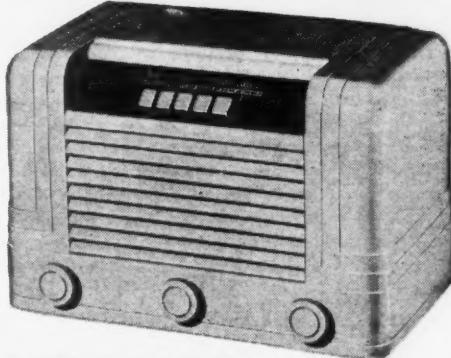
MODEL R-1238—Wood, Walnut Finish. 6 Tubes (Including Rectifier). A.C.-D.C. Automatic Tuning and Tone Control.



MODEL R-1230—Plastic, White Finish. 5 Tubes (Including Rectifier). A.C.-D.C. Also available in Plastic, Mahogany Finish, Model R-1231.



MODEL R-1234—
Plastic, Ivory Finish.
6 Tubes (Including Rectifier). A.C.-D.C.
Tone Control. Also available in Plastic,
Mahogany Finish, Model R-1235.



MODEL R-1236—Plastic, Ivory Finish.
6 Tubes (Including Rectifier). A.C.-D.C.
Automatic Tuning and Tone Control.

Delco Radio
DIVISION OF
GENERAL MOTORS

MANUFACTURING PRECISION

DELCO RADIO — A UNITED MOTORS LINE

Delco home and auto radios are distributed nationally by United Motors Service Distributors.

Readers' Clearing House

(Continued from page 48)

from a leaking head gasket or cracked block would be white in color. However, the fact that your oil consumption is excessive would indicate the possibility of two causes of trouble. I would suggest that you make an oil leak test on these bearings to see just which ones are leaking oil.

I note, of course, that you have installed new rod bearings but it is entirely possible that the crank shaft is excessively worn. In addition, the

leaks might be from the main bearings which were not replaced.

The fact that the smoke is not blue in color would indicate that probably your oil consumption is the result of leaks and is not passing the rings into the combustion chamber.

The cause of the white smoke is a little more difficult to locate, but I would carefully examine the head gasket to see if there is any evidence of water passing the head gasket into

the combustion chamber. Also check both the top of the block and the face of the cylinder head with a straight-edge to make sure they are not warped. Also examine the valve chamber for any cracks. And when you drain the oil from the engine, drain it into a clean receptacle so that you can examine it to see whether there is any water present which would confirm the fact there is a water leak causing your trouble.

Oil Loss

I have a 1938 Chevrolet that loses oil at speeds over 50 miles per hour. The loss is about one quart every 20 miles. At speeds under 50, there is absolutely no loss.

This engine was completely overhauled about one year ago when piston rings were replaced. This, of course, included new gaskets throughout. About three months ago had bearings adjusted again, gaskets replaced, and the breather thoroughly cleaned. What, in your opinion, is the trouble?—A Washington Subscriber.

IT'S rather difficult to say just what might be the cause of the oil consumption on your 1938 Chevrolet. If the engine is smoking the oil is either getting past the piston rings, or is being drawn into the combustion chamber through the intake valve guides. On the other hand if there is no evidence of smoke at the exhaust pipe, the loss is most likely the result of leaks at the oil pan, rear main bearing or distributor shaft.

Judging by the quantity of oil being lost, I am inclined to believe that there is a leak present rather than that the oil is being consumed as a result of worn piston rings.

I would suggest you check carefully for oil leaks at the points mentioned, and also make sure that the drain from the valve chamber back to the crankcase is fully open.

If the loss of oil is around the distributor, it is caused by a clogged drain which can be opened after removing the distributor.



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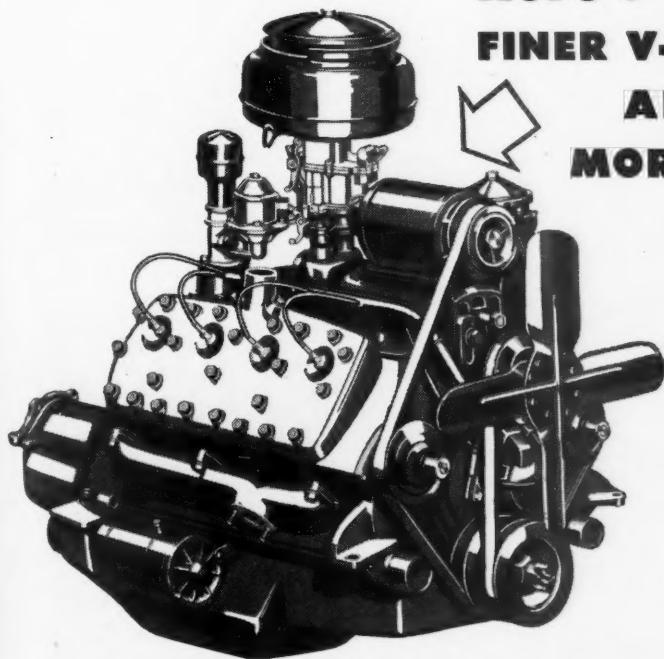
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TODAY, as through the years, many a vital automotive advancement is coming from Ford. The Ford Motor Company . . . originator of the modern assembly line . . . pioneer of low-cost transportation . . . is known the world over for the part it has played in setting the pattern of broad industrial achievement.

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- Valves are *pre-set* . . . need no adjusting. Valve seats, both intake and exhaust, have molybdenum chrome alloy steel inserts, reducing the need for periodic grinding.
- Main connecting rod and camshaft bearings are easily removable precision-type.

Ford

F O R D M O T O R C O M P A N Y

Guessing Right on Overheating

(Continued from page 25)

he forgets what it was you said your brother-in-law done to it before it got here."

Pop jerked the instrument away from his ear and Tommy, even from the far side of the desk, could hear the crackling of the receiver.

"No," said Pop, "I'm not burned up. I like to work on jobs that somebody else stubbed a toe on. But I get a little curious sometimes about what goes on behind my back."

Tommy could hear the phone crackling again. "There's just this much about it, Ellis. Before I put a wrench on that car I wanna know what's been done to it." After a pause, he smiled. "Well, that's better. What else did he do?"

Pop listened attentively for a time, then said, "That gives us somethin' to go on. We'll see what we can do." He set down the phone and tugged at his right ear lobe thoughtfully. "I

guess I should of kept my big mouth shut," he said.

"What's wrong?" asked Tommy.

"I don't know—and it ain't gonna be easy findin' out. It looks like Ellis's brother-in-law done a pretty thorough job."

"But it still looks like overheating."

"That's what it looks like, all right," said Pop, getting up. "But I'm beginnin' to wonder. I guess I better have a look."

When they reached the shop, Pop rechecked all the points Tommy had inspected at lunchtime.

"We'd probably be smart to take it down," said Tommy.

Pop did not reply immediately. He stuck his head under the hood again and took a long look at the left bank of the V-8 engine. After a few minutes, he straightened up and jerked a thumb toward the other bank. "Pull the thermostat outa that right bank," he said, "and test it. I want to know how hot the water has to get before the thermostat opens."

Though puzzled, Tommy carried out the instructions. He watched the mercury in the test-tank thermometer climb to 165° but the thermostat did not open. It reached 195° and still nothing happened to the thermostat. When the water boiled, he shut off the heat and went to find Pop.

"That thermostat's done for," he said.

Pop's whole face wrinkled in a grin. "I called the pocket on that shot, didn't I?" he said.

Tommy ran a hand over the back of his head. "I don't see—he began.

"It sticks out like a bell hop's palm," said Pop. "All we have to do is put in a new thermostat and that Ford will be as good as new."

"But," persisted Tommy, "if a bad thermostat made the engine heat up, why doesn't it show up on the heat gage?"

(Continued on page 62)

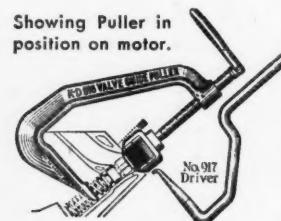
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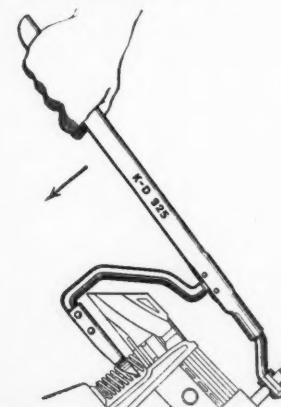
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SLEEVES • WHEEL SUSPENSION PARTS



Indianapolis Race

(Continued from page 22)

No description of the Twin Coach Special can be complete without reference to the "Torsilastic" springing media employed. It consists of a cylinder of rubber bonded to an outer housing and an inner shaft. The suspen-

sion elements are secured to housing and shaft respectively. Road deflections are thus resisted by loading the rubber core in torsion.

Power plants of the Twin Coach car are 91 cu. in. Offenhauser 4 cylinder engines, each boosted by a sizable Roots type blower using the helical rotor shape. These power units drive

the car through axle mechanisms which are understood to be adapted from the driving units used on the front-drive Fords constructed for the 1935 race by Harry A. Miller.

Performance of this car in practice was almost surprisingly good. It appeared to ride and handle extremely

(Continued on page 58)

RACE ENTRANTS

Car No.	NAME	DRIVER	Engine Make	No. Cylinders	Bore	Stroke	Displacement	Supercharger	Spark Plug	Ignition	Carbu-retors	Suspension	Shock Absorbers	Fuel		Oil	Weight	Wheelbase	Qualifying Speed										
														Make	Model	Gallons	Quarts												
1	Bowes Seal Fast Spl.	Rex Mays	B	8	2.96	3.25	179	C	B	B	DD	PC	C	C	H	H	R	A	52	RF	40	2084	104	128.861					
2	Novi Governor Spl.	Ralph Hepburn	W	8	3.125	2.937	180	C	B	P	W	3	DD	PC	I	C	H	H	F	A	80	M	48	106	133.944				
3	Noc-Out Hose Clamp Spl.	Cliff Bergere	O	4	4.31	4.62	270	N	C	P	W	2	UD	PC	B	C	FH	F	R	S	58	O	40	1976	105	126.471			
4	Wolf Motor Co., Tulsa Spl.	Chief Miller	O	4	4.25	4.5	255	N	C	B	P	W	2	UD	PC	C	C	H	M	E	F	55	O	32	1910	100	124.640		
5	Fageol Twin Coach Spl.	T. Bettenhausen	O	4	4.31	4.5	262	N	C	B	P	W	2	UD	PC	C	C	H	D	E	R	58	RF	32	1820	103	121.880		
6	Blue Crown Spark Plug Spl.	Paul Russo	O	4	4.29	4.5	265	N	BC	B	P	W	4	UD	B	C	C	H	M	E	R	43	T	44	1830	103	121.880		
7	Blue Crown Spark Plug Spl.	L. G. S. Spl.	O	6	3.75	4	265	N	BC	C	P	W	4	UD	B	C	C	H	D	E	R	43	T	44	1960	107	121.880		
8	Blue Crown Spark Plug Spl.	Al Putnam	O	4*	2.93	3.37	91	R	C	C	P	W	2*	UD	PC	I	*1	*1	E	R	4	RF	33	34	1854	107	126.148		
9	Blue Crown Spark Plug Spl.	Harry McQuinn	S	8	3.20	3.75	181	C	C	P	W	2	UD	PC	C	C	H	H	R	A	52	RF	40	2084	104	128.861			
10	Fageol Twin Coach Spl.	L. G. S. Spl.	Boxar Tool Spl.	BR	8	3.62	4.37	271	N	C	P	W	3	UD	PC	C	C	H	H	F	H	A	60	M	40	1980	105	121.449	
11	Offenhauser Spl.	Geo. Robson	S	6	3.2	3.75	182	C	C	P	W	1	UD	PC	C	C	H	H	F	H	A	50	O	42	1980	104	119.193		
12	Thorne Eng. Co. Spl.	Frank McGurk	O	4	4.25	4.5	255	N	C	P	W	2	UD	PC	C	C	H	H	F	H	A	60	O	32	1910	105	125.541		
13	Schoof Spl.	Emil Andres	MA	8	2.68	4	179	2R	C	S	P	ME	2	UD	B	I	C	MA	FH	H	R	48	O	44	2000	107	121.139		
14	Elgin Piston Pin Spl. (8CTF)	Joe Chitwood	O	4	4.31	4.62	272	N	C	P	W	2	UD	B	C	C	H	H	R	S	31	O	40	1982	102	119.816			
15	Noc-Out Hose Clamp Spl.	R. Snowberger	MA	8	3.68	4	179	2R	C	S	P	ME	2	UD	B	C	C	H	H	R	A	52	O	44	2015	107	121.139		
16	Tucker Torpedo Spl.	Geo. Barringer	M	6	3.5	3.12	180	C	C	P	W	2	UD	PC	I	C	H	H	F	H	E	4W	GU	40	G	36	2225	102	121.139
17	Marchese Spl.	Ray Richards	M	8	2.5	3.5	137	C	C	P	W	2	UD	PC	I	C	H	H	F	H	E	4	R	35	C	36	1769	100	121.139
18	Offenhauser Spl.	Steve Truchan	M	4	4.33	4.62	272	N	C	P	W	2	UD	PC	I	C	H	H	F	H	E	27	RF	30	1955	100	121.139		
19	Boyle Maserati Spl. (8CTF)	Ted Horn	MA	8	2.68	4	179	2R	C	S	P	WE	2	UD	B	I	C	MA	FH	H	R	42	O	32	1978	107	123.980		
20	Automobile Shippers Spl.	Sam Hanks	M	4	4.25	4.5	255	N	C	P	W	3	UD	PC	I	C	H	H	F	H	E	28	RF	36	1943	105	120.220		
21	Spike Jones Spl.	Louis Durant	AR	8	2.7	3.93	182	2R	C	S	P	WE	2	UD	PC	I	C	H	H	F	H	E	40	O	40	2168	105	118.973	
22	Alfa Romeo Spl.	H. Banks	MA	8	3.31	2.62	181	R	C	S	P	WE	1	UD	PC	I	C	F	H	H	R	42	O	32	1902	105	123.980		
23	Auto Shipper Spl.	T. Hinnersitz	O	4	4.31	4.62	270	N	C	P	W	2	UD	PC	I	C	H	H	F	H	E	49	O	40	1978	105	121.449		
24	Sheffler Spl.	Bill Sheffler	O	4	4.25	4.5	255	N	C	P	W	2	UD	PC	C	C	H	H	F	H	E	57	RF	32	1853	100	121.449		
25	Offenhauser Spl.	Hal Cole	AR	8	2.67	2.93	176	2R	C	S	P	WE	2	UD	PC	C	C	H	H	F	H	E	70	RF	60	1920	105	120.220	
26	Bristol Spl.	H. Robson	M	8	3.5	3.5	269	N	C	B	P	M	4	UD	PC	C	C	H	H	F	H	E	1900						
27	Z. Arkus-Duntov	G. Villares	MA	8	3.06	3.06	180	2R	S	P	WE	2	UD	PC	I	C	H	H	F	H	E	38	O	32	101				
28	Grancor V8 Spl.	Danny Kladis	F	8	3.31	3.87	258	N	C	B	P	S	2	DD	AH	C	C	F	F	E	F	G	25	O	21	100			
29	Jimmy Jackson	O	4	4.27	4.5	259	N	C	B	P	W	2	DD	PC	C	C	F	F	H	E	R	35	G	24	1920	101	123.278		
30	Jimmy Wilburn	AR	8	3.01	3.2	182	2R	C	B	P	WE	2	UD	PC	C	C	F	F	H	H	R	60	RF	36	105.5	120.278			
31	Mobileoil Spl.	W. Cantlon	O	4			255	N														28	C	48	100				

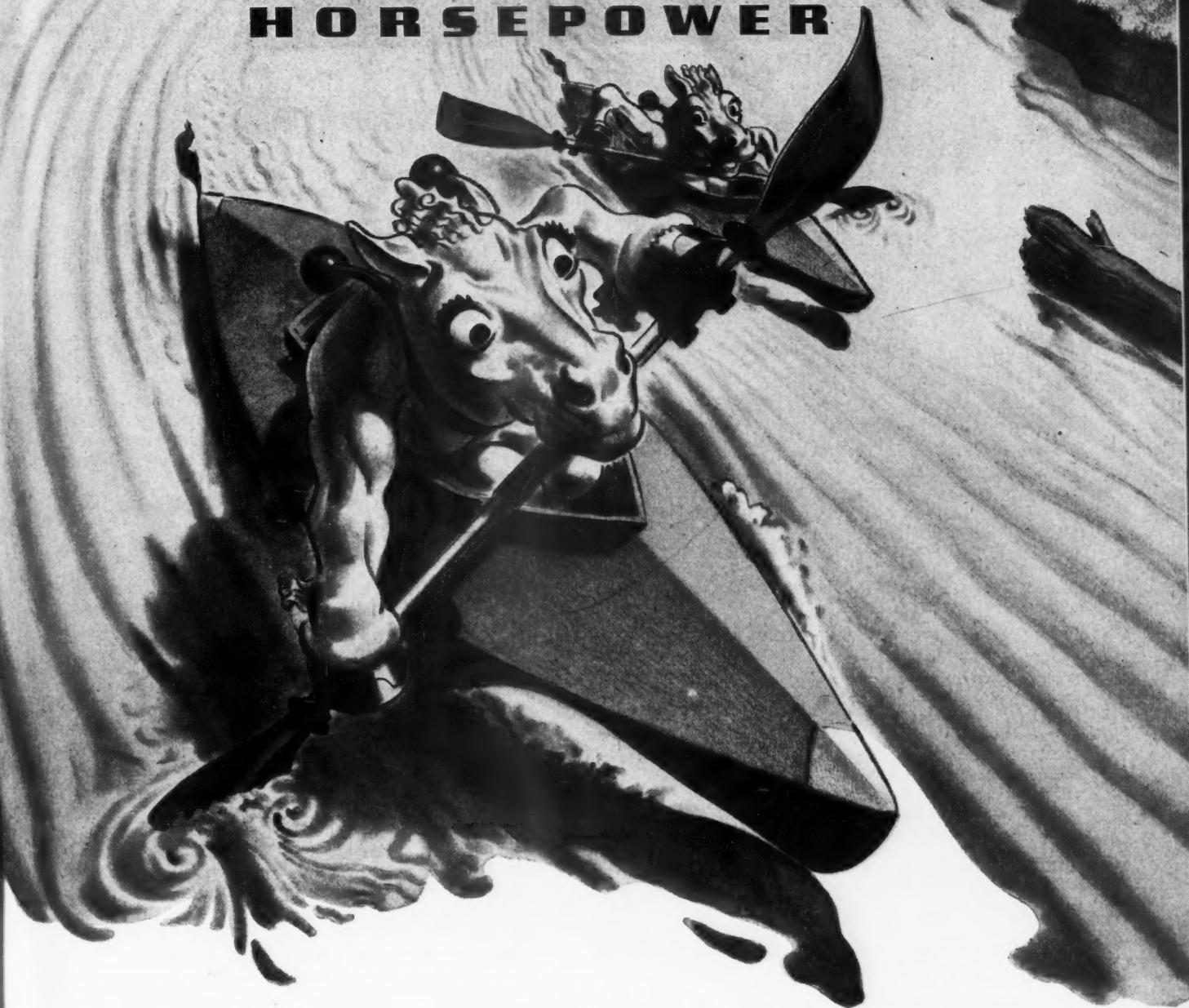
ABBREVIATIONS

ENGINE MAKE	PISTON RINGS
MA—Maserati	PC—Perfect Circle
M—Miller	B—Burd
O—Offenhauser	M—Maserati ()
S—Sparks	AH—American Hammered
L—Lencki	
B—Bowes S-F	
AR—Alfa-Romeo	
ST—Studebaker	
BR—Brisko	
V—Voelker	
*—Engines per Car	
SA—Sampson	
C—Clemmons	
F—Ford	
LA—Lagonda	
MB—Mercedes-Benz	
W—Winfield	
DRIVE	IGNITION
F—Front	B—Bosch
R—Rear	S—Scintilla
4W—4-Wheel	W—Wico
SUPERCHARGER	IGNITION CABLE
R—Rootes	P—Packard
C—Centrifugal	
N—None	
*—1 per Engine	
SPARK PLUGS	CARBURETORS
C—Champion	ME—Memini
B—Bowes	M—Miller
BC—Blue Crown	W—Winfield
	S—Stromberg
	WE—Weber
	P—Pigget
	*—1 per Engine
	STYLE
	H—Horizontal
	UD—Updraft
	DD—Downdraft
	X—1/2 Updraft
	{1 Downdraft

How They Finished

Finish Position	Driver	Number of Car	Car Name	M.P.H.	Cause of Withdrawal	Number of Pit Stops	Withdrawn Lap No.	Finish Position	Driver	Number of Car	Car Name	M.P.H.	Cause of Withdrawal	Number of Pit Stops	Withdrawn Lap No.
1	G. Robson	16	Thorne Eng. Spl.	114.820		2		2	J. Wilburn	63	Mobileoil Spl.		Broken oil line	3	64
2	J. Jackson	61	Jackson Spl.	114.488		1		3	T. Bettenhausen	42	Bristol Spl.		Engine trouble	6	45
3	T. Horn	29	Boyle Mac. Spl.	109.820		3		4	D. Nalon	54	Maserat Spl.		Broken rod.	1	44
4	E. Andres	18	Elgin Piston Pin.	108.904		2		5	M. Rose	8	Blue Crown Spark Plug		Universal joint.	39	
5	J. Chitwood	24	Noc-Out Hose Spl.	108.399		3		6	H. Robson	48	Phillips Miller Spl.		Wrecked.	3	
6	L. Duran	33	Alfa Romeo Spl.	105.073		6		7	G. Connor	38	Walsh Spl.		Broken crankshaft.	39	
7	G. Villares	52	Maserati	100.783		4		8	L. Tomei	15	Boxar Tool Spl.		Burned piston.	4	36
8	F. Wearne	7	Wolfe Motor Spl.	99.271		3		9	H. Banks	31	Auto Shippers Spl.		Oil pressure.	2	33
9	W. Sheffler	39	Maurer Spl.	Flagged		3		10	S. Canton	64	H-3 Spl.		Rod bearings.	3	32
10	W. Devore	17	School Spl.	Flagged		1		11	G. Barringer	26	Tucker Torpedo Spl.		Broken clutch.	1	27
	M. Hansen	41	Offenhauser	140				12	R. Mays	1	Tucker Torpedo Spl.		Transmission.	3	26
	R. Snowberger	25	Hussey Spl.	133				13	D. Kladis	59	Grancor Spl.		Exhaust header.	3	25
	H. McQuinn	14	Mobilgas Spl.	123				14	S. Hanks	32	Spike Jones Spl.		Engine.	3	22
	R. Hepburn	2	Novi Governor	120				15	H. Cole	47	Don Lee Spl.		Oil line broke.	3	16
	A. Putnam	12	L. G. S. Spl.	119				16	P. Russo	10	Fageol Twin Coach		Fuel tank leak.	3	15
	C. Bergere	3	Noc-Out Hose Spl.	81									Wrecked.	15	
	D. Dinsmore	45	Johnson Spl.	81											

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Florida Automobile Dealers Assn. Holds First Postwar Convention

In a speech to nearly 500 members of the Florida Automobile Dealers Association at Daytona Beach, FADA's president, J. Saxton Lloyd, outlined an aggressive commonsense program for the future.

Lloyd called for sound trade practices, and friendly unity among the dealers. "By trying to strike down and take unfair advantage of our competitor, we actually destroy ourselves and weaken the entire retail automobile industry. If we cooperate fully and compete actively but fairly, I firmly believe that we can become a tremendously powerful force for good in our communities . . . state . . . and nation."

A new Title Law has been prepared, Lloyd stated, which, when completely worked out, will be a great improvement over the old one. A booklet explaining the new law in full was distributed to all members at the convention.

A weekly news letter, covering all of the latest information made available through the National Automobile Dealers Association, will be sent regularly to all FADA members to keep them informed of latest developments in Washington and Detroit. Special letters and telegrams are sent to members in emergencies, so that the organization may at all times be ready to act concordantly on vital matters.

A new general manager, Walter C. Mallory, has been recently appointed to coordinate the activities of the FADA group, ably assisted by Mrs. Glenna Baker, formerly with the National Automobile Dealers Association.

Lloyd strongly urged that the state laws governing dealerships be tightened to exclude irresponsible and unethical operators. "At present," he stated, "the only requirement for operation is the payment of \$5 to the state and \$2.50 to the county . . . perhaps the time has come when we should seek a dealer licensing law such as prevails in other states."

He further suggested that a "Dealer Exchange Bulletin" be established in which "wanted" and "for sale" items could be listed for the mutual convenience of all FADA members. He strongly recommended that the membership concern themselves with a personal campaign for public safety and highway construction.

"Unless the terrible toll of automobile accidents is curbed," Lloyd stated, "we anticipate a wave of public indignation which will result in a number of restrictive regulations adversely affecting the free use of motor vehicles."

President Lloyd pointed out that the gasoline tax was originally levied for the purpose of building highways and bridges. For many years, however, there has been a tendency toward diverting gasoline tax funds to other purposes.

"As automobile merchants," said Mr. Lloyd, "we should and must insist that the trend of diversion be stopped. Every effort made within the state to accomplish road improvements and new highway construction should be encouraged actively."

President Lloyd ended his speech with an appeal for aggressive unity among all FADA dealers. He pointed out that other groups have organized and that the automobile must organize, too, or be swallowed up. "Unless we are prepared to fight according to the latest rules established by big labor on the one hand and big business on the other," Lloyd stated, "we're dead ducks!"

The convention as a whole, the first one to be held by FADA since the war, was reported an outstanding success. It was spotlighted by nationally famous speakers, many executive sessions, and several gala banquets. Subjects discussed included the analysis of dealer problems, tax and profit suggestions and the latest Washington developments.

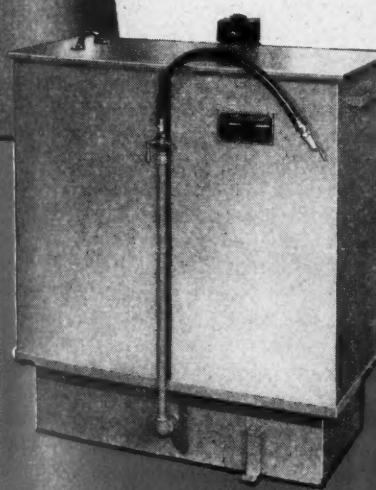
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Circo "Chief" efficiently and economically cleans parts five different ways, hot vapor cleaning, (automatic) spraying, (automatic) drying, (automatic) dipping and soaking. Each cleaning method has been developed for a specific type of parts cleaning and each in itself accomplishes an outstanding cleaning job.



Circo Comet

TWIN TANK DEGREASER

is much the same as the "Chief" except it is a smaller unit and is not equipped with pump for spraying. It is a fast portable degreaser which can be moved from place to place with ease and put into immediate action by merely plugging into light socket.

This compact degreaser cleans parts four ways, hot vapor cleaning (automatic), drying (automatic), dipping and soaking. It starts, stops, vapor cleans, dries and feeds itself automatically. Requires no attention other than feeding it parts. There is no faster, or more thorough degreaser on the market at any price and it economically handles a surprisingly large volume of small parts cleaning.



CIRCO PORTABLE HYDRO-SPRAY

The model 36 Circo "Hydro-Spray" Cleaner is the last word in a portable spray unit for general cleaning of metal parts. Mounted on casters it can be pushed about from place to place.

Simple in both design and operation it can easily be operated by anyone. To operate plug into light socket, place parts in tank or wire basket, press on foot switch and immediately you get a pressure flow of cleaning liquid that cleans well engineered, trouble free, packless pump develops a powerful pressure which produces a forceful, constant stream that loosens and dislodges grease and dirt.



CIRCO Products COMPANY

2835 CHESTER AVENUE • CLEVELAND 14, OHIO

Robson Wins at Indianapolis

(Continued from page 54)

well.

Also of considerable interest was the Novi Governor Special front drive car produced by Winfield Engineering, Inc., and which Hepburn set a new track record of 133.944 m.p.h. in qualifying. This outfit, which arrived at the track rather late, is an outstanding example of front drive design.

The front end is independently sprung by torsion bars. Wheels are carried by a pair of parallel arms and spherical contour knuckle structures. The upper support arms are cast aluminum alloy. Lower arms are fabricated from chrome moly steel sheet.

Steering gear in this car is a dual setup, having a separate drag link to each front wheel. (Maserati has used this for some years.) This type of construction eliminates any type of track rod or short link between wheels.

Rear suspension of this car is conventionally handled by semi-elliptic springs. It carries an exceptionally capacious fuel tank. The entire car is remarkably low and has smooth body lines.

Engine of the Novi Governor Special is the same type of blown V-8 which was used by Ralph Hepburn in the Bowes Seal-Fast Special he drove in 1941.

A fine study in classic body lines was the Offenhauser Special driven by Mel Hansen. This car, which employs an older engine formerly used by Leon Duray, has a brand new chassis. Although entirely conventional in most respects, this chassis merits some consideration for its detailed construction. The frame structure is round chrome moly tube about 3-in. or so in diam-

eter. All fittings, shock absorber brackets, and similar attachments are welded to this structure. Body formers and framing are also welded to the basic tube on each side. This results in a complete unit of very compact proportions. The engine is supported on rubber feet (possibly a type of Lord mount) secured to shelf brackets welded on each frame tube.

Well rounded, flowing body lines are probably the outstanding feature of this car. It also is remarkably low, easily one of the lowest jobs, overall, which ever has shown at Indianapolis.

Although perhaps not too noteworthy from the standpoint of new design features, the balance of the American field supplies examples of detail refinements aimed at increased speed, better tire wear, and better all-around performance.

Other refinements in prospect for some cars include lighter wheels with wider base rims to improve car handling and tire wear, installation of larger fuel tanks to stretch distances between pit stops, and some mechanics were converting to alcohol in unsupercharged engines. This year's list of unblown engines shows more alcohol fuel users than ever before.

The group of American owned Italian cars also underwent detailed improvements. The Boyle Maserati received a new pair of rear hubs as a result of the hub shell failure which forced Wilbur Shaw from the 1941 race just as he was well on his way to another win. At that time the rear hubs were 42 mm. The new ones are 52 mm.

The type 8CL Maserati has shown at Indianapolis before—Raul Riganti entered one in 1940 which was

wrecked early in the race, and thus had no fair opportunity to demonstrate its otherwise forceful performance. The current entry was a brand new car, completed since the late war by the brothers Maserati in Italy.

The type 4CL's were, in the absence of the 91 inch Mercedes which was to have been brought over by Carracciola, outstanding examples of the very stout competitive qualities which the Italians have bred into their 1½ liter designs. There are strong indications that these cars may be purchased in this country.

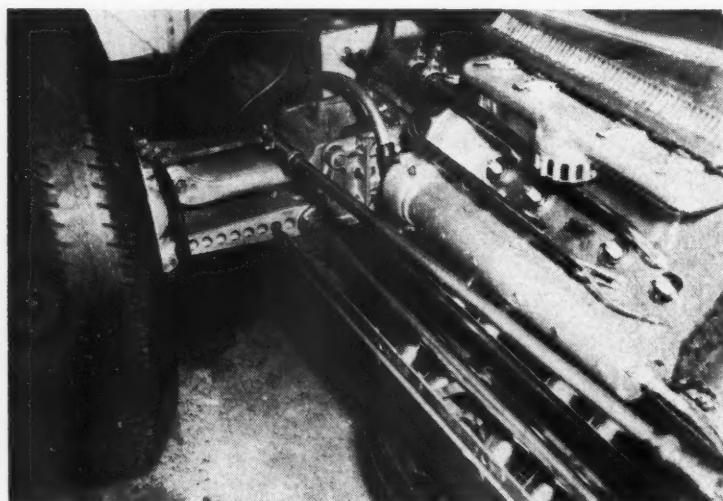
In late afternoon of the last day's qualifying trials, May 28th, Rudi Carracciola, topflight European driver with a long list of conspicuous successes to his credit, was the victim of a nasty spill on the southeast turn. His car, a Thorne Engineering Special, spun, hit the outer wall, then rebounded to the inside throwing Carracciola clear enroute. It did not overturn. His injuries were reported to be serious but not critical. Carracciola's wreck was indeed on ironic incident in his career. Master of the formidable Mercedes-Benz type of racing vehicle Carracciola's misfortune at the wheel of a more or less conventional American racing creation with rigid axle suspension, was certainly anti-climatic.

Automotive Equipment Sales Co. Organized

After many years in the automotive equipment field through manufacturing, sales and having developed the industry's "Automotive Equipment Plan" of the Commercial Credit Corp., Franke Haske and his partner, Walter E. Scott, have organized the Automotive Equipment Sales Co., manufacturer's representatives. Walter E. Scott is a recognized authority in brake maintenance equipment technique and general service operations. Scott was the leading salesman in national sales with a brake service equipment manufacturer until he and Haske became associated in this new operation. Their office is at 2222 Olive Street, St. Louis 3, Missouri.

The company will specialize in service maintenance equipment, and already they represent the Vulcan Bearing Machine Co. and Storm Manufacturing Co., manufacturers of motor rebuild and maintenance equipment.

The firm has a complete brake department for jobbers' sales. The territory covered consists of Wisconsin, upper Michigan, Illinois, Indiana, Kentucky, eastern half of Missouri, Tennessee, Alabama, Mississippi, Louisiana and Arkansas. Four men are now traveling the territory, and there will be six men in the field, including Frank Haske after May 12.



A view of the torsion bar suspension system as installed on the Novi Governor Special Front drive car driven by Ralph Hepburn who established a new qualifying record.



WHIZ VENUS POLISH is easy to use—and easy to sell! In one easy operation—in less than an hour—it cleans and waxes. It quickly removes the accumulation of dirt, scum, and oxidation that makes a car dull and dingy... provides a beautiful, weather-resistant wax finish that *really* lasts—defies sun, rain, snow!

VENUS double-action POLISH is the favorite of motorists from Coast to Coast! It provides you with a made-to-order profit opportunity you just can't afford to miss. Place your order for VENUS POLISH with your jobber today. *R. M. Hollingshead Corporation, Camden, New Jersey; Toronto, Canada. Warehouses in Dallas, San Francisco, and Chicago.*



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STAMM-RAYMOND INC.
RAYNE, LOUISIANA

DODGE-PLYMOUTH
DODGE Job-Rated TRUCKS

August 29, 1945

Mr. L. A. McQueen, Vice-Pres.
The General Tire & Rubber Co.
Akron, Ohio.

Dear Sir:

We have sold General tires for the past 19 years and are the oldest Dodge Plymouth distributor in southwest Louisiana. It has always been our practice to changeover 90% of all our new cars to your General Dual 10 or Dual 8 tire on the showroom floor. By doing this, not only do we make a nice profit on the changeover, but find it quite a help in meeting so called standard brand competition with the take-off tires.

In all the above years that we have handled your line of tires we have never had to worry with the thought that someone else in our market would at some time or other also be able to sell General tires.

Our thinking is that any car dealer will make no mistake in handling General Tires as we think General is one of the most aggressive tire manufacturers in the business; always first with the newest in tire manufacture!

Yours very truly,
STAMM-RAYMOND INC.

A. F. Stamm
A. F. Stamm
AFS/wm

Stamm-Raymond, Inc.
is typical of the car dealers
who have always profited
from their General Tire
Franchise... it being their
policy to change-over 90%
of their new cars to the
Top-Quality General Tire.

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**Naturally, Generals Add Prestige
to Your Showroom . . .**

and in addition, up to 80% of your new car sales will include change-overs to GENERALS!

For General is America's acknowledged Top-Quality Tire . . . the one premium tire with continuing public acceptance that produces volume sales at premium prices . . . premium profits. The one tire to which wise car buyers will change-over as a matter of course.

In normal times, from 25% to 80% of your new car buyers will change-over to Generals . . . alone producing enough profit to pay your entire overhead!

Today, particularly, car buyers demand the best tire quality they can buy . . . General's proved top-quality . . . the smarter appearance, safety and the extra mileage they learned to admire during the war.

And . . . "always first with the newest," General will soon have a new tire . . . the greatest tire ever built . . . to assure that more new car buyers will continue to change-over to Generals than to all other tire brands combined.

Yes . . . now is the time to stake your claim for the premium tire market ahead. The General Tire Car Dealer Plan . . . Proved the most profitable in the business . . . is now open. Write today!

THE GENERAL TIRE & RUBBER CO • AKRON, OHIO

Guessing Right on Overheating

(Continued from page 52)

Pop chuckled. "That's one of the things I like about gettin' old," he said. "Every so often I can pull somethin' out of my memory and make young fellows like you think I'm smart. That job had me stumped for a while. Then I remembered. Up till about 1939, Ford V-8's had the temperature gage connected in the left bank only. That meant the right bank could get as hot as the devil and still never show up on the gage. About

everything else had been checked on this job, so I figured it could be a bad thermostat in the right bank. And it was."

"Gee," said Tommy, "I'll bet Mr. Carney will be surprised when he finds out where we located the trouble."

"If he finds out," corrected Pop.

"Aren't you going to tell him?"

"Maybe I will and maybe I won't. It don't always pay to show your

hand. I remember when I was in school how a new girl got a terrible crush on some fellow because he could draw such cute pictures on the blackboard with his left hand. Then, like a dope, he told her maybe it was on account of he was left-handed. She never had the same feelin' toward him after that."

McQuay-Norris Opens Boston Factory Branch

McQuay - Norris Mfg. Co. has opened a new factory branch and warehouse at 1354A Commonwealth Avenue, Boston, Mass. The new branch will carry adequate stocks of parts manufactured by the company, and maintain a complete machine shop for piston finishing, pin fitting, tin plating (aluminum and iron pistons) and bearing resizing. The branch will be in charge of Benard Zitter, manager, and Robert Schrader, assistant manager.

The new branch will be operated under the same policy as other McQuay-Norris branches, serving only qualified McQuay-Norris distributors. It will house the district sales offices of the company under the direction of district manager John F. Thurston.

Other McQuay-Norris Factory Branches are located in New York; Jacksonville, Florida; Chicago; Oakland; and Los Angeles.

Appointed Zone Manager

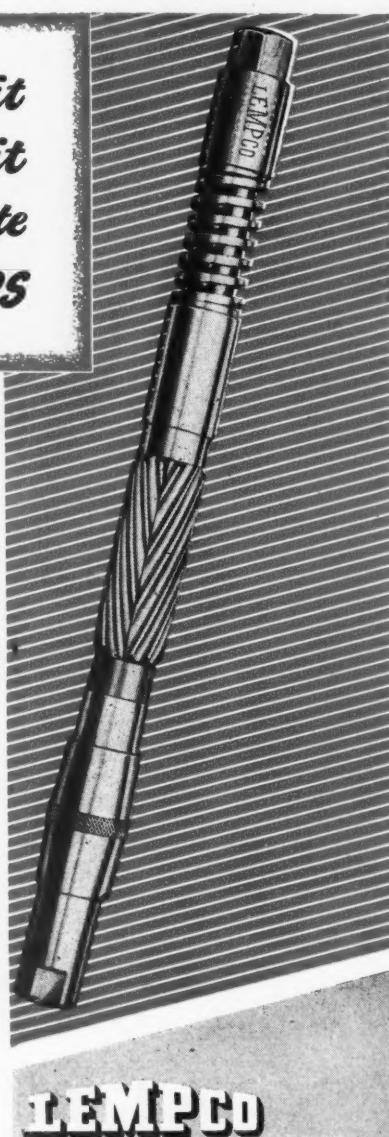
L. B. Hakes has been appointed Nash Motors zone manager in Cincinnati, replacing Harold C. Houghton, who will open a Nash dealership in Columbus, Ohio, it was announced recently by H. C. Doss, vice-president of Nash-Kelvinator Corp. and general sales manager of Nash Motors.

No Dangerous Grit when pins are fit with fast, accurate LEMPCO REAMERS

No abrasive grit can be left in bearings to cause future damage when pins are fit with Lempco Dual Spiral Expansion Reamers. Their free cutting, dual spiral blades, shearing in opposite directions at the same time, produce a smooth, high quality bearing finish that eliminates honing.

But Lempco Reamers offer you many other exclusive features. Bores with keyways, oil grooves or slots can be accurately sized and finished. They provide 25 to 50 times the life of ordinary reamers. About 90% of all passenger car piston pin jobs can be done with 6 Lempco Expansion Reamers. Nearly 30 plug reamers are required to provide the same coverage.

To fit pins faster — easier — more profitably, use Lempco Dual Spiral Expansion Reamers. Write for catalog that gives full details and prices.



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Lempco are also Manufacturers of Crankshaft
• Clutch Plate • Flywheel • Conrod • Wet Surface • Brake Shoe and Brake Drum Grinders and Lathes • Cylinder Reamers and Reamer Drive and Line Boring Bars • Electric and Hydraulic Presses.



"My husband said to have it drained, and put in 6 quarts of 30 oil, but I'll get 3 of 60 and save 75c."



Why Play Blindman's Buff ...when you need parts for these vehicles?

Don't grope in the dark when you need parts for these vehicles—use MoPar factory engineered and inspected parts. They are designed by the engineers who designed the vehicles, and are made to the same exacting specifications as the parts originally installed at the factory. MoPar Parts build customer good will.

NOTE TO ALL REPAIR SHOPS

If you need parts of any kind for a Plymouth, Dodge, De Soto, or Chrysler, obtain them from a dealer for these vehicles. For Dodge truck parts, see a Dodge dealer.

Plymouth

DODGE

DeSoto

CHRYSLER

DODGE Job-Rated TRUCKS



Check Your Driving—Check Your Car—
Check Accidents. Cooperate with Police
Traffic Safety Check, May 15 to June 30.

CHRYSLER CORPORATION—PARTS DIVISION, DETROIT 31, MICHIGAN

Starting Motors

(Continued from page 29)

In the actual motor (*Figs. 4 and 5*), the armature contains a great many conductors, and there are a large number of commutator bars in the commutator. Also, the cranking motor requires a means of mechanically connecting the cranking motor armature and the engine flywheel for cranking the engine, and automatically disconnecting the two after the engine is started. The reason that this is needed is that the armature must be turned

at relatively high speed in order to develop sufficient power to crank the engine. Therefore the gear ratio between the armature and flywheel may be as much as 15 to 1. This means that the armature turns 15 times to turn the engine flywheel and crank-shaft once. With this high gear ratio, it is necessary to have a means of automatically disconnecting the armature from the flywheel when the engine starts. If this were not done and

the engine were increased to say 2000 r.p.m., then the 15 to 1 gear ratio would cause the armature to turn 30,000 r.p.m. This high speed would create such a terrific centrifugal force that the armature would be ruined. Two separately automatic devices are in use on passenger cars, the Bendix drive and the overrunning clutch drive. In addition, the Dyer drive is used on heavy duty applications.

BENDIX DRIVE

The Bendix drive (*Fig. 4*) consists of a drive pinion, a hollow threaded shaft and a drive spring. The drive spring is fastened solidly at one end to the armature shaft, and at the other end to the hollow threaded shaft. The threads on the shaft match internal threads on the drive pinion, so that the drive pinion can rotate on the threaded shaft, moving endwise as it does so.

Let us follow the Bendix drive action through a complete starting cycle. When the cranking motor switch is first closed, the armature begins to revolve. This causes the Bendix drive spring and threaded shaft to rotate with the armature. However, the drive pinion, being a loose fit on the hollow threaded shaft, does not pick up speed as quickly as the armature with the result that the threaded shaft turns within the drive pinion. This causes the pinion to move endwise and into mesh with the flywheel teeth. This would be the same effect that you would get if you were to hold a nut stationary and turn a screw within it. When the drive pinion

(Continued on page 66)

SKIPPING IS NO FUN FOR MOTORS

When a motor skips, sputters, misfires—it's a cinch something's wrong. May be ignition or timing, but just as likely, fouled plugs—a sure sign of a generally gummed-up interior. Dirty motors simply wear out faster in hot weather . . . MARVEL MYSTERY OIL will head off this danger for your customers. This famous oil and gasoline additive works TWO WAYS to insure internal cleanliness and proper lubrication all summer.

First, MARVEL MYSTERY OIL DISSOLVES the sticky scum of sludge and gum that steals power and slows up engine efficiency. Second, MARVEL MYSTERY OIL REINFORCES all lubricants to develop sensational heat resistance. As a result, rings and valves swap mucky coats of gum and varnish for tough sheaths of lubricant armor—a film that even withstands top cylinder temperatures. Meanwhile, plugs, pump screens, tiny oil and fuel lines are thoroughly purged and kept clean.

Added to crankcase oil and gasoline, MARVEL MYSTERY OIL pays off with an amazing jump in pick-up, pep and power. Don't miss out on the many obvious sales and service advantages for you in this remarkable product . . . have it ready . . . order TODAY! Emerol Mfg. Co., Inc., 242 W. 69th St., N. Y. 23, N. Y.

MARVEL MYSTERY OIL



For the WINNING Number . . . Take a
Peek at Pages 76 and 77.

Extra Protection at no extra cost

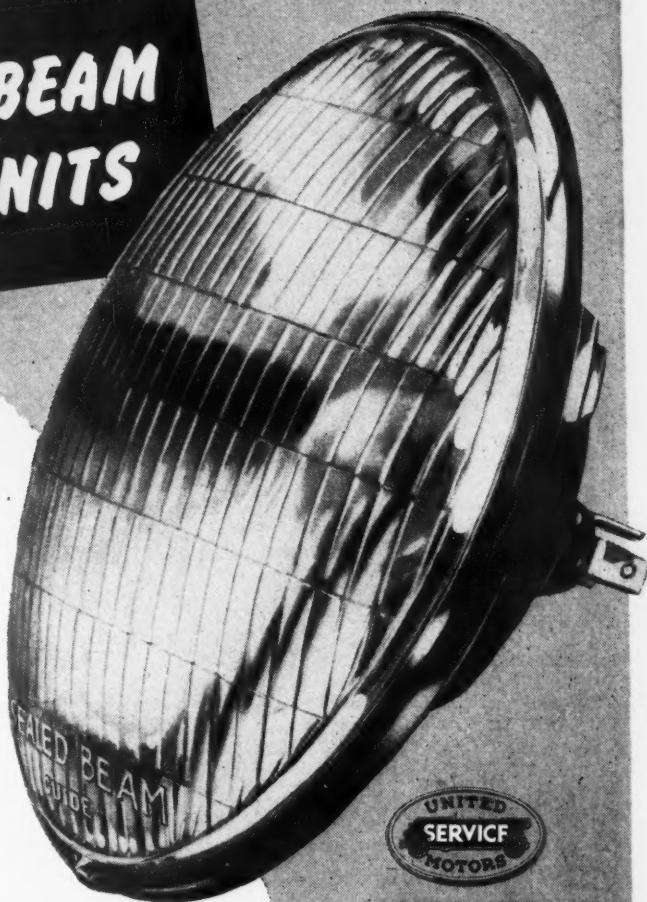
GUIDE SEALED BEAM
HEADLAMP UNITS

YOU'RE *doubly* sure of giving customer satisfaction when you replace worn-out Sealed Beam headlamp units with Guide. For, at no extra cost, Guide units bring your customers Sealed Beam lighting at its best—with the double protection of no dim-out, no black-out. There are more Guide units in use than any other make.

NO DIM-OUT—because Guide Sealed Beam units are permanently sealed against dirt, dust and traffic film. They maintain their brightness and efficiency throughout the life of the unit.

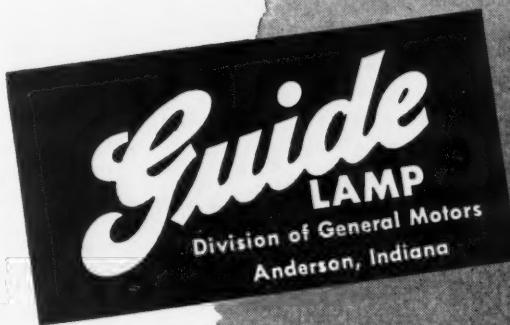
NO BLACK-OUT—because even if a lens is cracked, Guide Sealed Beam units do not fail. Until the damaged unit can be replaced, a separate bulb inside the sealed unit continues to light the way safely.

Safe Headlamps Are
"Correctly Aimed" Headlamps—
Check Your Customers' Headlamps Today



GUIDE LAMP
A UNITED MOTORS LINE

Guide Sealed Beam replacement units and Guide lamp service parts are sold by United Motors Service distributors.



LET SAFETY SHARE THE RIDE—REPLACE WITH GUIDE

Starting Motors

(Continued from page 64)

reaches the pinion stop, it is forced to rotate with the armature. This causes the flywheel to turn so that the engine is cranked. The Bendix drive spring compresses slightly to take up the shock of engagement.

As soon as the engine begins to operate and increases in speed, the flywheel spins the drive pinion faster than the armature is turning, with the result that the drive pinion is spun out of mesh so that it is auto-

matically demeshed from the flywheel.

OVERRUNNING CLUTCH

The drive pinion of the overrunning clutch drive (Fig. 5) is mechanically shifted into and out of mesh from the engine flywheel. Movement of the shift lever causes the lower end of the lever to shift the overrunning clutch back and forth on the shaft. The clutch has internal splines which match external splines on the

armature shaft so that both must rotate together.

Fig. 2 shows an overrunning clutch with the face cut away so that three of the four rollers can be seen. These rollers are assembled into notches in the outer shell of the clutch and rest against the collar which is part of the drive pinion. When the pinion revolves in one direction, the rollers spin freely. But when the pinion is rotated in the opposite direction, the rollers are turned back toward the smaller part of the notches where they jam tightly to prevent the pinion from rotating independently of the clutch shell.

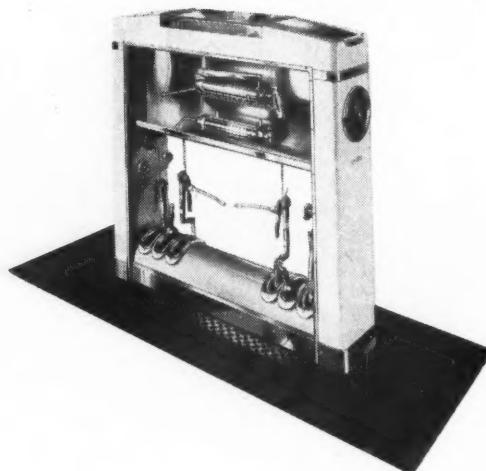
Let us examine the manner in which the overrunning clutch operates. The shift lever is operated mechanically by a foot switch in the driver's compartment, or magnetically, by means of a solenoid on the cranking motor. As the shift lever is moved, the overrunning clutch is pushed along the armature shaft (to the right in Fig. 5). If the drive pinion teeth and flywheel teeth align, immediate engagement takes place. However, if the teeth butt so that engagement does not take place, the spiral spring back of the clutch compresses to spring load the pinion teeth against the flywheel teeth. Further movement of the shift lever closes the cranking motor switch so that the armature begins to rotate. If engagement has taken place, cranking begins immediately. If the teeth are abutting, the initial armature movement causes alignment of the teeth to take place so that engagement is accomplished. Then, the rotary motion of the armature carries through the overrunning clutch splines and shaft to the outer shell causing the rollers to jam in their notches so that the pinion is forced to rotate. This forces the engine flywheel to turn so that the engine is cranked. Then, after the engine starts, the flywheel turns the pinion faster than the armature is rotating so that the pinion actually overruns the clutch and armature. This action is possible because the pinion, in rotating, moves the rollers back into the larger part of the notches where they have sufficient room to rotate without jamming.

Next month, we will discuss cranking motor maintenance and how to locate and correct the various troubles that might occur in the cranking motor.

P & D Manufacturing Adds New Building

P&D Manufacturing Co., Inc., Long Island City, New York, has added a large new building to the company's plant. Completed March 1, this modern building is said to be one of the finest and best equipped plants of its kind in the industry. Manufacturing operations bridge the entire span from raw materials to finished products.

COMPARISON...THERE CAN BE NONE
FOR HERE IS THE PROMISE OF PERFECTION... *Fulfilled*



THE COMPLETE LUBRICATION CENTER IN LESS THAN 3 SQUARE FEET



THE WORLD'S MOST ADVANCED
DEVELOPMENT IN NEW
LUBRICATING EQUIPMENT

BALCRANK INC., CINCINNATI 9, OHIO



EXIDE SALUTES

THE AUTOMOTIVE INDUSTRY ON ITS 50TH ANNIVERSARY

THIS YEAR the Automotive Industry enters its second half-century of progress. All who are associated with it in any of its many branches—production, sales, service—can look back with pride upon a record of growth and achievement that is without parallel in industrial history.

Established in 1888, Exide has been closely identified with the Automotive Industry from its early days. Exide was used for "sparking" (ignition) in 1902. In 1907, Exide was used for lighting; and in 1911, the first stock cars, equipped with electric starters, used Exide Batteries. Today Exide Batteries

are the first choice of millions of owners of cars, trucks, buses and other automotive equipment.

It is difficult to realize that 50 years ago there were no garages, service stations, filling stations, tire service stations, battery service stations or other related enterprises. Today, they line our city streets and highways from coast to coast. Many thousands of them display the famous "Exide Service" sign...the insignia of good batteries, good service and successful dealers. More than ever before, it's good to be an Exide dealer.

Exide

BATTERIES

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32
Exide Batteries of Canada, Limited, Toronto

Intra-Shop Communication

(Continued from page 31)

other department, permitting a high degree of close co-operation.

By eliminating wasted time and motion, this intercom system pays off, too, because Monarch Motor Co. gets full production every hour from high-wage employees and is able to turn out more jobs faster and more economically.

Increased production is accomplished through better servicing of the departments. For instance, a mechanic

in the motor repair shop finds he will require a new cylinder head gasket. He gives his order to central control and the gasket is on hand when he needs it. Another workman needs a decision from the service manager. He calls central control and the service manager gives his decision at once. There's no hold-up of work. Through such co-ordination, work keeps moving without interruptions and costly delays.

One of the greatest benefits, however, lies in the degree of customer satisfaction resulting from this co-ordination. When a customer drives in and wants a job done, the communication system puts the service manager into instant touch with any department where the service will be done. He can tell the customer at once when the job can be completed, whether the required parts are in stock. If a customer wants a grease job and oil change by a certain time, the service manager instantly contacts the lubrication department and, without taking a man from his work, asks about the job, tells the customer when his car can be serviced.

Telephone calls through the switchboard can also be handled quickly and efficiently by central control. While the customer waits, central control can check with any department, get the required information and pass it on to the customer with a minimum of delay. Customers like this quick, business-like service and Monarch Motor Co. is making new friends through it every day.

Automotive competition is certain to become stronger as we move deeper into the postwar era. Many firms and individuals plan to set up shops and grab off some of today's easy business. Such competition will attempt to force prices down and entice customers from other shops. In addition, high taxes, high labor costs and increased overhead are here to stay. The logical solution lies in the increased shop efficiency, more productive man hours and less wasted time. Making man hours pay is a straight road to profit.

SAYS THE MAN IN THE HELMET—

"For flat, smooth fillets on vertical and overhead welds, you can't beat AIRCO No. 230 Electrode—AWS Classification E 6011

"...It's tops in the field for all-position AC welding.



1 "I like the neat, smooth fillets it gives on vertical and overhead welding. They're unusually strong, deep welds, too—good enough to meet strictest code requirements."

2 "The metal sets up rapidly, which is one of the important reasons why this Airco No. 230 electrode is an especially fine electrode for making vertical and overhead welds."

3 "Slag doesn't interfere and the fine spraying action and lack of arc-blow helps out greatly, too."

"I USE IT ON AC OR DC.

It's mainly a grand all-position AC electrode, but works fine with DC reverse polarity, too. It's easy to identify by this A.W.S. color marking—white coating and blue band."

Airco electrodes are made in a complete line for every welding job. Send for new Catalog 120.

Address Dept. MG, Air Reduction, General Offices: 60 East 42nd St., New York 17, N. Y. In Texas: Magnolia Airco Gas Products Company, General Offices: Houston 1, Texas. Represented Internationally by Airco Export Corporation.



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Offices in all Principal Cities

Weld with



"Come up to my apartment tonight, and I'll show you my famous collection of gas tank caps."

BIGGER PROFITS FOR YOU WHEN YOU SELL AMERICA'S FINEST...

BLUE CROWN HUSKY

Controlled Heat Zone SPARK PLUGS

THE ORIGINAL COMPLETE LINE OF SPARK PLUGS WITH HEAVY DUTY INSULATORS

- The Massive oversize construction guarantees extra efficiency . . . "HUSKIES" deliver when the going is toughest.
- The Heavy Duty Insulator is bigger and stronger . . . it will not crack "when the heat is on."
- The Heavy Duty Electrodes are huskier . . . for longer life with fewer adjustments.
- The Controlled Heat Zone insures uniform operation. It provides a definite path for controlled heat dissipation.



Dealers make bigger profits on BLUE CROWN "HUSKIES" in two ways—they sell more spark plugs and the margin is greater on every plug they sell. The dealer gets a fairer, more liberal profit in return for his cooperation in presenting BLUE CROWN'S advantages to his customers. BLUE CROWNS are easy to sell . . . have more important features . . . make friends who tell others. With the present cost of doing business so high, the extra profit on BLUE CROWNS is appreciated by alert dealers.

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EXPORT SALES
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Cable Address "BORINTCO"

Willys Jeep Transfer Case

(Continued from page 37)

Disconnect the clutch release cable at the bell crank. Drain the radiator and loosen the upper radiator hose. Take out the inspection plate in the floor board. Remove the transfer shift lever pivot pin lock screw. Take out the shift lever pivot pin and remove the levers. Remove the bolts holding the center cross member to the frame side rail and take out the cross member. Take out the bolts holding the transmission to the flywheel hous-

ing. Move the transmission to the right and disengage the clutch control level ball joint. Lower the jacks under the engine and transmission. Slide the complete assembly towards the rear of the car until the clutch shaft clears the bell housing, then lower the jack under the transmission, and remove the unit from the car.

After the unit is removed from the car, it should be thoroughly cleaned and the grease drained from both

the transfer case and the transmission. To separate the transfer case from the transmission, remove the six cap screws which hold the top cover on the transmission case. Take off the transfer case rear cover. Pull the cotter pin, nut and washer and take out the transfer case main drive gear. Wrap a piece of soft wire around the transmission main shaft just back of the second speed gear. Fasten one end of the wire around the right hand front cover screw, and the other end around the left hand front cover screw. This will prevent the main shaft from being pulled out of the transmission when the transfer case is taken out. If the main shaft is pulled out with the transfer case, the synchronizer parts will drop into the bottom of the case. Take out the five screws holding the transfer case to the transmission case, and with a soft hammer tap the end of the main shaft and separate the two units. The transmission main shaft bearing should slide out of the transfer case and stay in the transmission case.

To disassemble the transfer case, remove the drive shaft flange and the brake assembly and linkage. Take off the lower pan. Take off the intermediate shaft lock plate and drive out the intermediate shaft through the rear of the case. The intermediate gear with thrust washers and bearing may now be removed through the bottom of the case. Remove the plugs, springs and balls from both sides of the output bearing cap and shift the front wheel drive to the engaged position. Take out the cap screws holding the output bearing cap and remove the cap, shaft and universal yoke as an assembly. Be careful not to lose the shift rod interlock. Take off the output shaft snap ring and thrust washer. Take out the cap screws that hold the rear output bearing cap and take off the output cap as an assembly with the universal joint flange, speedometer gears, bearing and output shaft. The sliding gear and output shaft gear will now slide off the shaft and come out through the bottom of the case. Take out the set screw in the sliding gear shift fork and remove the shift rod.

When the transfer case gears slip out of gear, it may be due to the shifting fork being bent, a broken or badly worn bearing or a weak shifting lock spring.

When the transfer case gears slip out of front wheel drive, it may be due to a bent shifting fork, end play in the shaft, a weak shifting lock spring or a broken or badly worn bearing.

Hard shifting of the transfer case gears may be due to low tire pressure, the shifting lock ball scored, a bent shifting fork, the shift lever stuck on the shaft, or lack of lubricant in the case.



For fast cleaning of carburetors, fuel pumps, hydraulic brake and any other carbonized parts. Portable, compact. Dimensions: 18"x16"x11". Part-size is only limit to capacity.

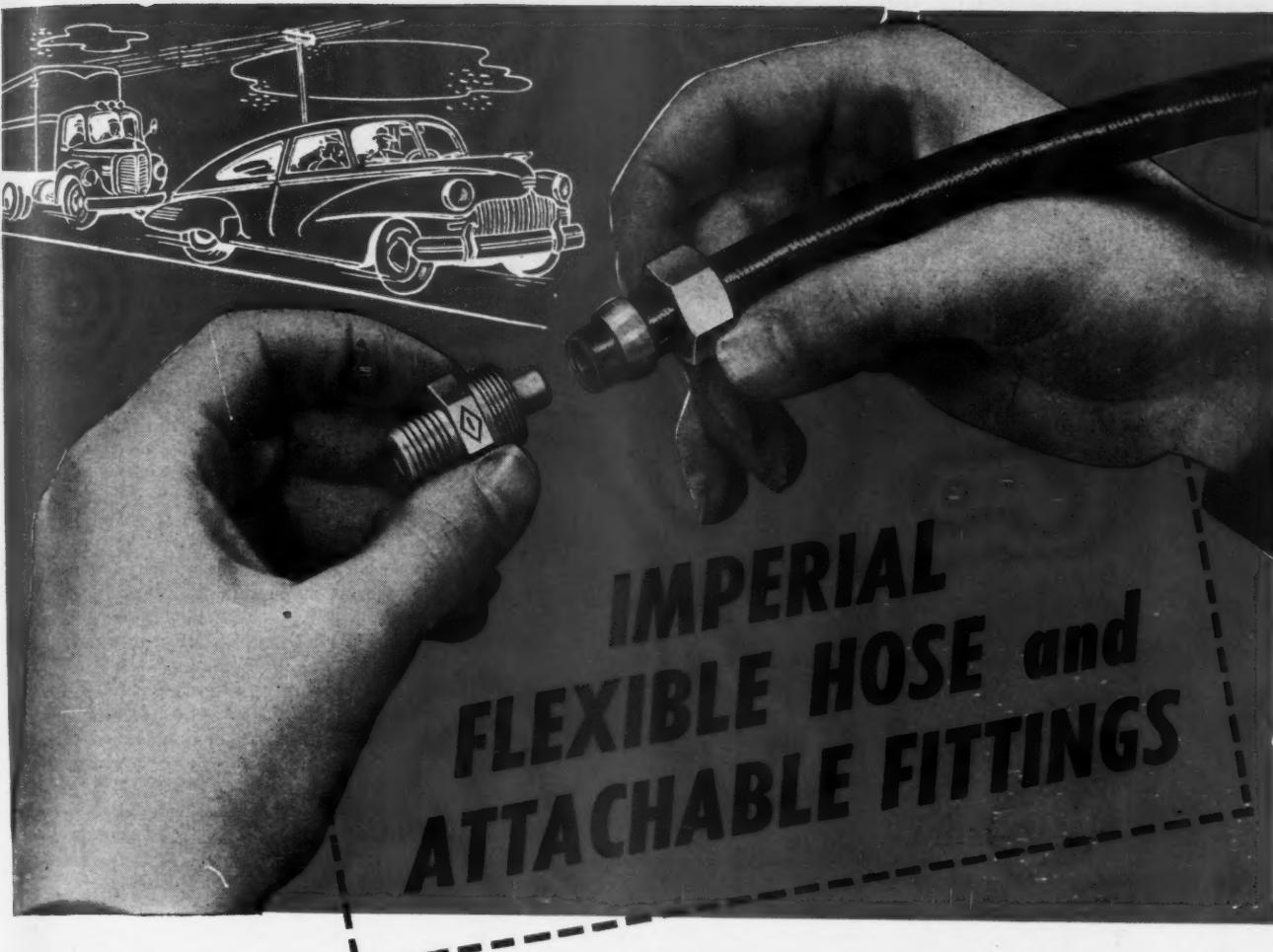
Turbulence is produced by metered air-action, with regulating valve control, subjecting parts to constant action of working fluid with greatly increased scrubbing effect.

AUXILIARY TO ALL KLEER-FLO MODELS OR FOR BENCH USE

Kleer-Flo HI-T CARBUSOL

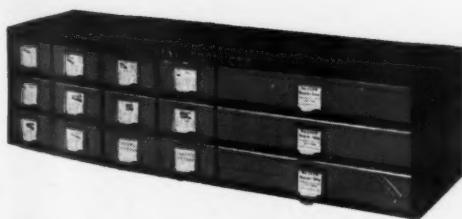
An especially developed cleaning compound for removing carbon, gummy residues, paint, aniline dyes, varnish, "caked" dirt, grease and oil from automotive parts and metallic assemblies. A cold cleaner, non-toxic, non-evaporating, not injurious to metal. Recommended for use in Kleer-Flo CARB-U-TATOR. Write for details.





**Imperial "Make-Up"
Kit No. 115-FN**

Here is an inexpensive kit of hose and fittings for making up the most commonly used flexible gasoline, oil and oil filter lines on cars and light trucks. Diagram in cover shows size and type of each fitting. Full instructions for assembly included.



Imperial "Master Stock" No. 315-FNA

This cabinet contains the hose and sizes and types of fittings for making up virtually all needed flexible gasoline, oil and oil filter lines. Large drawers contain hose. Small drawers contain fittings. Labels are complete with illustration, size and list price.

...for making up dependable gas and oil lines fast

Here's insurance against delays in rendering gas and oil line service. With a convenient kit of Imperial Flexible Hose and Attachable Fittings you can back up your stock of ready-made flexible fuel lines by making up needed lines in emergencies.

You also can make up oil filter lines, special assemblies and slow moving lines not ordinarily carried in stock.

Lines are extremely easy to assemble—no special tools required. Will stand up under the toughest operating conditions. Used for maintenance of Army Vehicles during the war.

Fuel Line Assemblies

Standard Imperial Flexible Fuel Line Assemblies are available for quick dependable replacements on passenger cars and on many trucks. You will find them unsurpassed for long, trouble-free service. See list in Catalog No. 22-B.

★ See Your Jobber



THE IMPERIAL BRASS MFG. CO., 1217 West Harrison St., Chicago 12, Ill.

IMPERIAL

BRASS FITTINGS • FLEXIBLE FUEL LINES • TUBE WORKING TOOLS
BATTERY HYDROMETERS • FUEL STRAINERS • WELDING EQUIPMENT



You Wouldn't Grind
Valves and Fail to
Clean Out Carbon



*PURITANIZE

A mechanic who thought it was good enough to grind valves and didn't bother to clean out the engine carbon wouldn't be tolerated in any repair shop. And it's just as important to *PURITANIZE the brake system when brake fluid is low, dirty and gummy. Adding a shot of brake fluid in a case like that is only a temporary measure. That's when the old, dangerously dirty fluid should be flushed out, brake system cleaned and fresh brake fluid added.

Puritan Hydraulic Brake Flushing Fluid and non-gumming Puritan Brake Fluid make the ideal team for this necessary *PURITANIZE JOB.

And Puritan 5 color displays, banners and lapel buttons help you sell this safety service to your customers, help you step up a brake filling job to a real profit-making Puritanize job. Get your Puritan Products and your selling displays from your NAPA jobber now.

*PURITANIZE...TO BRAKE SAFETY

- 1 Clean out the hydraulic line with fast-acting Puritan Hydraulic Brake Flushing Fluid.
- 2 Refill with non-gumming all "miscible" Puritan Hydraulic Brake Fluid.



PURITAN COMPANY, INC.
ROCHESTER, NEW YORK

New Stout Car

(Continued from page 41)

corner posts moved back 12 in. for unobstructed vision. Special windshield wipers were designed for the curved surface by Trico Corporation.

A special gasoline-operated heating unit, developed by Stewart-Warner, is mounted in the front baggage compartment and works independently of the engine, providing a flow of hot air which enters the interior through ducts on the car wall near the floor. It is regulated by a thermostat to provide heat, ventilation and defrosting.

The car is mounted on individually sprung wheels located at the extreme ends of the car, eliminating overhang. Each wheel suspension is sprung on an air cushion which can be inflated to accommodate any particular load. Doors are opened with electric push-buttons eliminating door handles or other protruding obstructions. A bumper, of Fiberglas construction, is faired into the body and runs around the entire car. Overall weight of the present model is about 3200 lb. and wheelbase is 137 in.

The powerplant now being used is the same one employed in the Scarab, a Ford V-8 engine. However, a new 100 hp. air-cooled engine soon will be substituted, together with an improved drive. It is understood that the engine is the new Jack & Heintz development with a total weight of about 300 lb., including transmission and differential and measuring only 12 in. high. Its use is expected to cut about 400 lb. from the overall weight of the car. In addition, Stout estimates that further body construction refinements will reduce the weight another 600 lb.

There is as yet no indication that the car is intended for immediate manufacture. Rather it is said to represent what can be done in future design. Stout said that while the Fiberglas construction affords great

(Continued on page 74)



"Let's go in and throw some birdseed around!"

Build for the future

WITH THE POWERFUL SUPPORT OF

UNITED MOTORS FRANCHISE

The great *pre-sold* parts and service market brought to you by a United Motors franchise is a *continuing* market—growing even greater as more and more new cars are made. For United Motors lines are original-equipment parts on the majority of *all* cars—new as well as old. And that will be as true tomorrow as it is today!

To help you make the most of this great market, United Motors gives you complete service support. Sales and merchandising programs, helpful service information, national advertising . . . these and many more features of a United Motors franchise are backing you up every day of the year.

Begin now to build wisely and soundly for a profitable future in the automotive service business. Call your United Motors distributor or write us direct.



A UNITED MOTORS FRANCHISE

Gives You These Advantages

- UP-TO-THE-MINUTE SERVICE INFORMATION—easy to use; speeds your work.
- ORIGINAL-EQUIPMENT PARTS—leading lines of leading manufacturers.
- NATIONALLY KNOWN LINES—respected and accepted everywhere.
- TIMELY SALES PROGRAMS—individually planned.
- MERCHANDISING ADVICE—based on long experience.
- WAREHOUSE BACKING—saves time, broadens inventory availability.
- COMPLETE PARTS LINES—parts for old cars and new.
- UNITED MOTORS SIGN—business-boosting identification.

UNITED MOTORS SERVICE

DIVISION OF GENERAL MOTORS CORPORATION • GENERAL MOTORS BUILDING, DETROIT 2, MICHIGAN

DELCO Batteries

AC Fuel Pumps, Gauges
and Speedometers

INLITE Brake Lining

DELCO Radio Parts

HYATT Roller Bearings

DELCO Auto Radios

HARRISON Heaters

DELCO Home Radios

NEW DEPARTURE Ball

Bearings

HARRISON Thermostats

DELCO Shock Absorbers

GUIDE Lamps

DELCO-REMY Starting,

Lighting and Ignition

KLAXON Horns

HARRISON Radiators

DELCO Hydraulic Brakes

New Stout Car

(Continued from page 72)

strength and insulation against heat and noise, present manufacturing processes are too slow, and consequently too costly, to permit volume manufacture. He predicted, however, that within 18 months or so, a flash-curing method could be worked out to overcome production troubles. He also pointed out that the design of the car is the important immediate consideration and that the body could be built of conventional materials.

Although the body was built at the Owens - Corning - Fiberglas Corp. to Stout's specifications and construction was done at Graham-Paige, the car is announced as a Stout project. It is understood that patent rights owned by Stout, Graham-Paige, and Consolidated-Vultee Aircraft are involved. It is also reported that Graham-Paige holds certain manufacturing rights to the car, but not exclusively. At a press conference several

weeks ago, Joseph W. Frazer, president of Graham-Paige and of Kaiser-Frazer said that Kaiser-Frazer had no particular interest in the Stout rear-engine car.

Graham-Paige Plant Sold to Chrysler

(Continued from page 40)

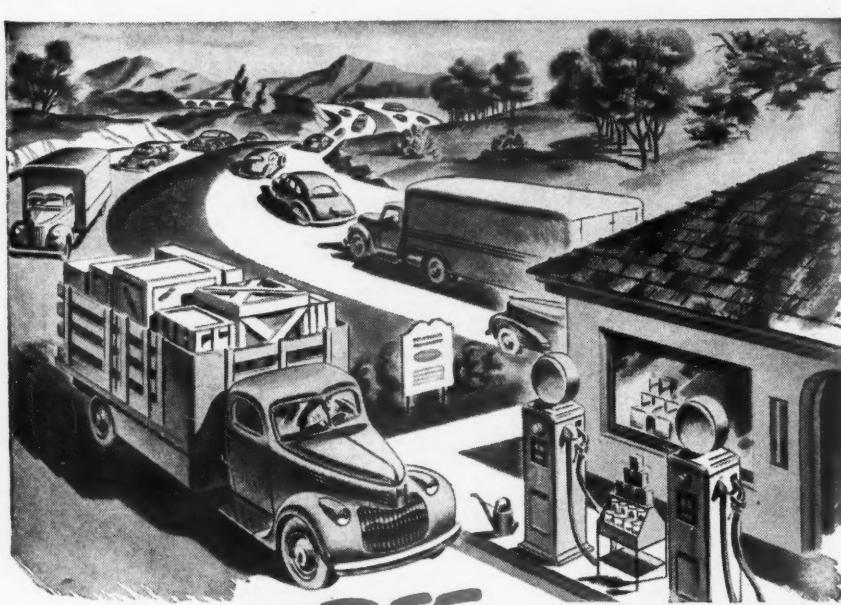
turing, engineering and power plant buildings having a total floor area of approximately 1,066,000 square feet.

In February, 1943, the Army leased about 3½ acres of the property and constructed a two-story building for use by the Army Air Corps. In November, 1945, the RFC leased the remaining property and utilized the buildings for storage purposes in connection with the Office of Surplus Property.

During World War II, Graham-Paige produced amphibious tractors (LVT-3) and aircraft engine connecting rods in the plant and the Chrysler Corp. leased approximately half of the manufacturing space to produce airframe sections for the Martin B-26 Marauder and the Boeing B-29 Superfortress.

Auto Manufacturers Assn. Approves Kaiser-Frazer

The Automobile Manufacturers Assn. has approved the application of Kaiser-Frazer Corp. for membership, according to George W. Mason, AMA president and president of Nash-Kelvinator Corp. The Graham-Paige Corp., of which Joseph W. Frazer, president of Kaiser-Frazer, also is president and board chairman, has been a member of AMA for several years. Approval of the Kaiser-Frazer application, Mason said, is in keeping with the established belief of the AMA that free competition not only is the basis on which motor vehicles have been constantly improved, but is essential for continued future improvement.



YOU CAN SEE YOUR SCHRADER GAUGE SALES COMING



NOW, Schrader Gauges are again available for you to use and to sell.

Every one of your truck customers will want at least one Schrader Gauge. He knows that wherever he goes regular and accurate gauge readings, before and after inflating, "make tires last longer."

Order your needs from your regular source of supply for prompt delivery. Stock a few extra for your truck customers. Watch your sales come rolling in.



Schrader
PRODUCTS
CONTROL THE AIR

A. SCHRADER'S SON, BROOKLYN 17, NEW YORK
Division of Scovill Manufacturing Company, Incorporated
Originators of the Comparative Air Loss System for Flat Tire Prevention



"And to my mechanic I leave my car, with the hope he can find that damn rattle in the rear end!"



FAST

ADAPTABLE

Snap-on BOXOCKET WRENCHES

**Powerful, safe leverage that
invites confident wrench speed**

Slipping handily into hard-to-get-at places . . . engaging the nut on all six corners with an encircling can't-slip-can't-spread grip . . . needing only *half the space* of an end wrench for full handle movement . . . Snap-on Boxockets are *speed tools* and *safety tools* on tough nut-turning operations. Chamfered openings slip readily over the nut. Double broaching permits operation within a 15° arc. Round handles provide comfortable grip. Snap-on Boxockets work swiftly and efficiently in many spots inaccessible to other wrenches.

For maximum usefulness on a wide range of work, Snap-on offers 13 types of its popular Blue Point Boxockets — in angled, offset, combination and flare nut heads — and in standard wrench sizes from $\frac{1}{8}$ " to $4\frac{1}{8}$ ". Available through Snap-on's nationwide direct-to-user tool service. "Ask your Snap-on man."

SNAP-ON TOOLS CORPORATION
8036-F 28th AVENUE • KENOSHA, WISCONSIN



Now GET ALL FOUR!

KEEP
POWER
UP

KEEP
OIL
DOWN

SMOOTH
NEW MOTOR
OPERATION

LONGER
LIFE

with the new Guaranteed



THE SURPRISE PACKAGE OF THE YEAR

Bombers over Europe—fighters over Tokyo—military vehicles all over the world have proved LEAK-PROOF design—proved how they work together

and complement each other. Now for the first time you can get ALL FOUR! ... LEAK-PROOF the really new piston ring set. It's guaranteed!

A POST-WAR DEVELOPMENT OF MCQUAY-NORRIS

LEAK-PROOF

Piston Rings

Primary Tension ring.
High tension ring
functions as a Fire Ring because it separates under load.

Secondary Compression ring with a high tension reverse loop expander. Functions both as a Blow-By control and Lubricating ring.

Major Oil Control. Free and independent steel segments. Four instead of two scraping edges. Special oil pressure pockets. Special reverse loop expander.

High unit pressure oil ring. With siled runner action faces. Sometimes used in fourth groove, sometimes in third. In some sets is equipped with high tension reverse loop expander.

They're New, They're Different, They're -
GUARANTEED!

Yes, guaranteed to give satisfactory performance for 10,000 miles or one year, whichever shall occur first, under the McQuay-Norris LEAK-PROOF Piston Ring Replacement and Labor guarantee, a liberal plan with no red tape.

MANUFACTURING CO. ST. LOUIS 10, MO. U.S.A.

Oldsmobile Production on Four-Door Sedan Begins

Oldsmobile's manufacturing schedules were adjusted recently to include four-door sedans, first of their type in the 1946 series to be built in the company's Lansing, Michigan, plants, it was announced by D. E. Ralston, general sales manager of the Oldsmobile Division.

The new cars are of the popular "76" and "78" designs and are being produced in all standard color combinations, according to Ralston. The former has a six-cylinder, 100-horse-

power engine, while the latter is an eight of 110 horsepower. Both are of 125-inch wheelbase. All Oldsmobiles of the 1946 model produced thus far have been of the two-door type and are known as Club Sedans.

"Production of Oldsmobiles, while not yet at pre-war level (which was the highest in history) is slated for substantial increases as materials become more readily available," Ralston stated. "An expansion program that will afford necessary facilities for producing the greatest volume of cars we have ever built, now is being pushed toward completion. When

peak production of the Seventy Series cars is reached we will be manufacturing an even dozen different body styles, incorporating a great variety of color options in solid hues and two-tone combinations," he said.

P. E. Chamberlain

P. E. Chamberlain, one of the real old time leaders in the automotive industry, passed on at his home in Millersville, Md., May 1st.



SELL K&W RADIATOR SEAL Guaranteed To Do The Job...and CAR OWNERS KNOW IT!

Yes, car owners know K & W Radiator Seal because over 3 million K & W advertisements in important consumer publications are being read by several times that many potential K & W customers.

This powerful advertising support is driving home the features that make K & W Radiator Seal the most economical and efficient means for repairing leaking radiators. These same ads also tell car owners about the K & W Mechanical Method, K & W Metallic Seal and other guaranteed K & W car service products.

Tremendous Profit Opportunity for K & W Dealers

K & W Radiator Seal is a real money-maker! Its better unit of sale (\$1.00 retail), greater dollar profit and money-back guarantee assure larger dollar and cents profits as well as customer good-will.

Ask your jobber about K & W Radiator Seal and the other money-making K & W products today!



Send for
this Free
Booklet

the new K & W
Complete Line
Catalog. Mail the
coupons now.

COUPON

Kerkling & Co., Burbank, California
Send me the K & W catalog:

Name _____

Address _____

City _____ State _____

S

K & W
METALLIC SEAL AND MECHANICAL METHOD
Repairs are Guaranteed for the Life of the Engine
If you cannot locate a K & W Service Shop nearest you,
write or wire for address of the shop nearest you.
Kerkling & Company, Burbank, California.

AND...FOR IMMEDIATE, INVISIBLE
REPAIRS TO CRACKED BLOCKS AND HEADS

© K & W Metallic Seal and Mechanical Method. New, proven, absolutely guaranteed methods for repairing cracked engines to ultimate service. Used chiefly in military repair centers, these amazing time and money-saving K & W services are now available to car owners at better service shops everywhere.

Chamberlain, known to thousands throughout the industry as "Perc," has since 1936 been associated with the American Hammered Division of Koppers Co., Inc., in connection with their sales promotion work. During the war years he was particularly concerned with the Company's public relations activities.

He served many years ago as manager of NADA; as sales manager of the old Peerless Motor Car Co.; as manager of the Greater Market Development of the Motor and Equipment Association. He also served in sales-executive positions for the old Marmon and Gardner automobile companies.

In the early days, while sales manager for Cadillac in Denver, Colo., Chamberlain pioneered the flat rate system of charging for automobile repairs. He was also one of the prime organizers of used car appraisal systems and actively campaigned to stop some of the bad trading practices which had proved so costly to the industry.

Mr. Chamberlain is survived by his wife, Magda.

Heads Dealer Group

B. R. Pless has been elected president of the newly-reorganized Asheville Automobile Dealers' Association, at Asheville, N. C. W. Harold Bell has been named vice president and Edwin L. Sams has been elected secretary-treasurer. C. Fred Brown is retiring president of the group, which has been inactive during the past two years because of wartime conditions.

BUILT TO SERVE

Long and Well



WILLARD BATTERIES—Automobile • Truck
and Bus • Radio • Motorcycle • Tractor
Aircraft • Marine • Diesel • Stationary
Sold and serviced by Willard Dealers
everywhere.

"SAFETY-FILL"
WILLARD
Dependability • Performance • Long Life

WILLARD STORAGE BATTERY CO. • CLEVELAND • LOS ANGELES • DALLAS • TORONTO

Motor Age Flat Rate Manual Approved by OPA

The *Motor Age Flat Rate and Service Manual*, 1946 edition, has received the approval for shop use by the Office of Price Administration, it was recently announced. The manual, greatly enlarged and carrying name *Motor Age* instead of Chilton is now being distributed to subscribers throughout the country as fast as copies are coming out of the bindery.

The present supply of *Motor Age Flat Rate Manuals* has been exhausted and orders are now being taken

for the 1947 edition. The *Motor Age Flat Rate and Service Manual* is larger than former editions, and contains a considerable amount of new data not found in prewar editions of the *Chilton Flat Rate Manual*.

Increased size of the pages enabled the compiling and addition of more flat rate operations, parts prices, tune-up and service procedure than were formerly carried. A huge service section, plus many exploded views and cross-sectional illustrations have been included as added features.

A vast amount of research and painstaking study was necessary in order to bring out this postwar edi-

tion of the *Motor Age Flat Rate Manual*. The latest information on 1946 models up to the printing date has been carefully assembled for quick use.

The news release from OPA follows:

Auto repair shops may use one of three specified trade manuals to help in determining their prices, the Office of Price Administration announced.

This action, effective as of May 27, 1946, is designed to facilitate pricing by the numerous automotive repair shops throughout the country through use of uniform times for the various repair jobs.

Selection of one of these manuals, which lists either the time that should be charged for on a given repair job or the complete labor price for that job is optional with each repair shop, which may, if so desired, continue with its present pricing practice.

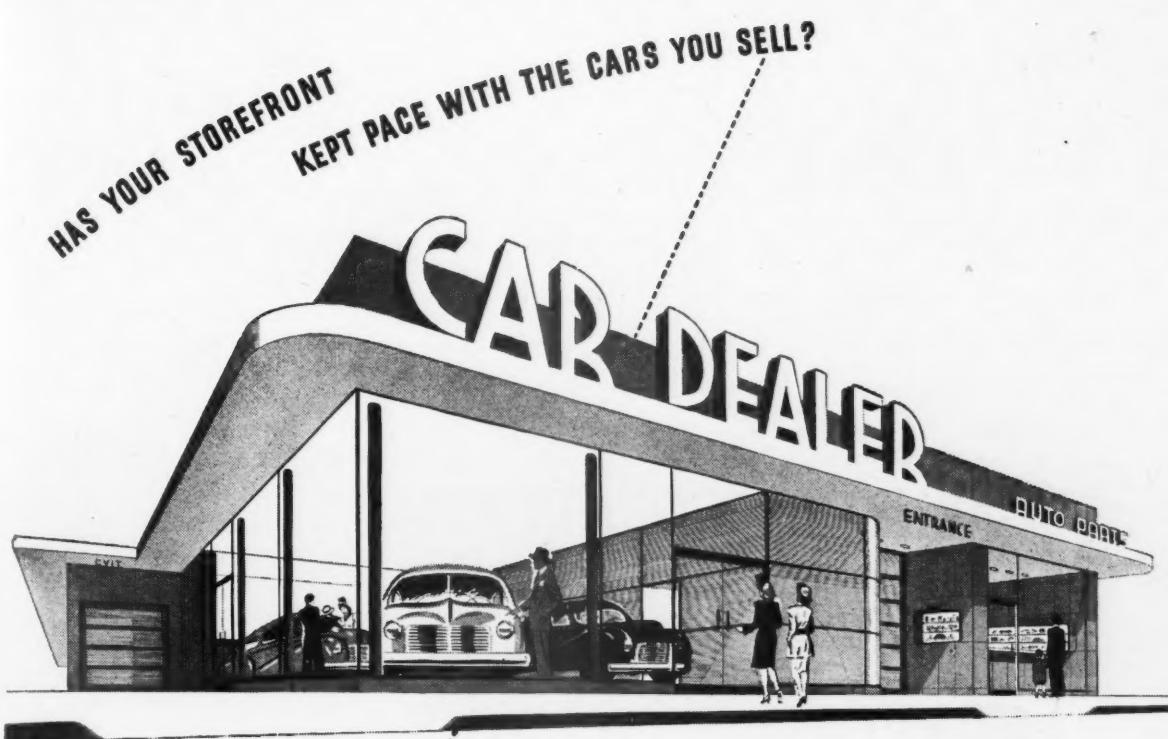
The general level of existing prices for auto repair jobs will not be changed by this action, OPA said.

While the time charged for will be the same for each repair job when one of the three manuals is used, the charges to the public may differ as the final price to the customer will depend on the shop's particular hourly labor rate. A shop using a manual that computes the final labor price to the customer is required to adjust that final price when its hourly labor rate is different from that used in the manual computation. Also, where a shop customarily makes a fixed charge for a particular repair job (that is, a charge not based on a customer's hourly rate), it must continue to observe that fixed charge as its ceiling rather than use a manual time period and its hourly labor rate to arrive at a higher charge. These requirements are listed in notices that must be affixed to the manual selected for use, and the manual must be made

(Continued on page 82)



"Take a pound of butter to Detroit, and see if you can get us some new cars!"



It pays to be *open-minded* about your storefront

What impression does your storefront make? Does it mark you as a successful, up-to-date dealer?

Many auto manufacturers, recognizing the importance of a "wide-awake" place of business, have designed storefronts and shop layouts to help you get a bigger share of business in the years ahead.

A prominent feature of many of these designs is the Visual Front—a style of front which gives prospects an unobstructed view of your car display. This is accomplished with large areas of plate glass and doors of clear *Tuf-flex**, the L·O·F glass that's tempered for extra strength. To reduce the possibility of condensation, glaze the front with *Thermopane**, L·O·F's transparent insulating unit.

You'll want color, too . . . so, face bulkheads, pilasters and facade with *Vitrolite**. This strikingly beautiful glass facing doesn't need refinishing in spite of weather and it keeps its color and luster year after year.

*Reg. U. S. Pat. Off.



LIBBEY·OWENS·FORD
a Great Name in GLASS

GM to Resume Teacher Training Program

The Auto Mechanics Teacher Training Program at General Motors Institute, Flint, Mich., central training agency for General Motors, is being resumed this summer after having been discontinued during the war years.

Two sections are scheduled, one to run from June 24 to July 20, the other from July 22 to Aug. 17. Designed for college and high school teachers interested in automotive subjects, the program was originally or-

ganized and presented in the summer of 1933 in response to a large number of requests. During the next eight years, teachers from every state in the Union and provinces in Canada participated and endorsed the methods used.

The 1946 program will be highlighted by emphasis on the General Motors Series "71" Diesel engine and its application to buses and trucks. Particular attention will be paid to such things as instruction methods and procedure; car and truck specifications and adjustments; gasoline and Diesel engines; transmissions—

both automatic and manual; bodies; axles; frames; suspensions; electrical systems; steering gears and linkage; maintenance tools and procedures; service operation and equipment and the automobile business and vocational guidance.

Throughout the program car and truck divisions of General Motors cooperate by furnishing current models of Chevrolets, Pontiacs, Oldsmobiles, Buicks, Cadillacs, GMC Trucks and Detroit Diesel engines for use as instructional aids.

Complete information regarding the Auto Mechanics Teacher Training Program can be obtained by writing General Motors Institute.



Air, iron and water. You'll find them in the cooling systems of all cars and trucks—and you'll find the *rust*, too! Rust, along with scale deposits, oil muck and grease, reduces cooling system efficiency . . . can result in serious engine damage from general overheating and local "hot-spots."

Hot weather driving days ahead mean cooling systems must be *right*—clean, efficient, dependable. Help make your customers' summer driving trouble-free by keeping cooling systems up to par with these Warner Products:

WARNER COOLING SYSTEM PROTECTOR. Keeps cooling system clean. Prevents rust and corrosion which lead to overheating and "hot-spots."

WARNER RADIATOR CLEANER. Quickly removes rust, scale and oil or grease accumulations which obstruct circulation and lower cooling system efficiency.

WARNER LIQUID SOLDER. Deposits tiny non-metallic fibers to repair leaks that occur anywhere in cooling system.

WARNER SERVICE CLEANER. Prepared especially for trucks, tractors and heavy-duty or badly neglected motors. Removes rust, scale, oil muck, grease.

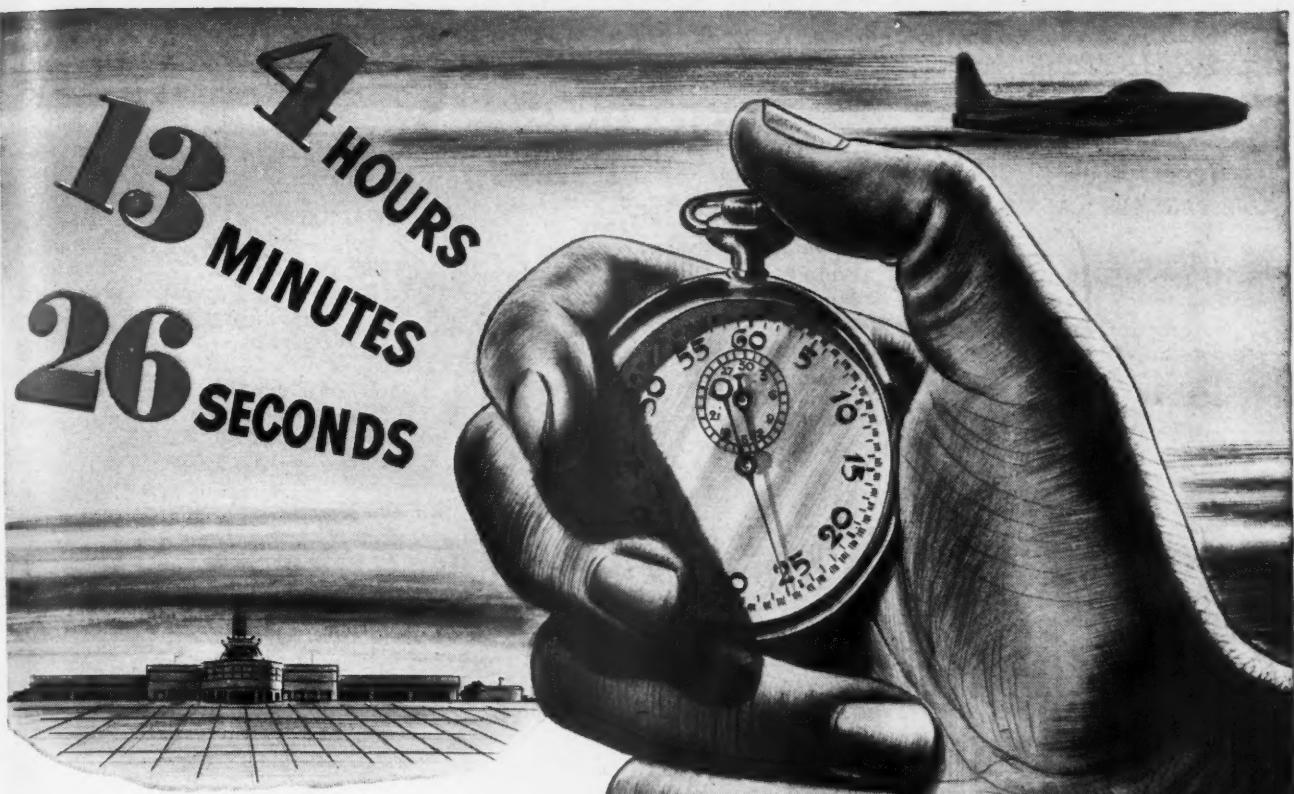
WARNER-PATTERSON COMPANY
920 S. MICHIGAN AVENUE, CHICAGO 5, ILL.



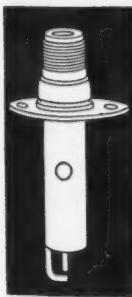
Every "drive-in" is a prospect for Warner Products. Sell 'em all!

STANDARD OF PROTECTION FOR MORE THAN 25 YEARS
Copyright 1946, Warner-Patterson Co.





**A sensational
non-stop flight record in
which AC Spark Plugs
had a part**



Jet engine
plug

The Army Air Forces, Lockheed, and General Electric worked a great triumph in the cross-country flight which broke all records on January 26 from Long Beach, California, to LaGuardia Field, New York. Again, America proved its supremacy in the air, and all the world acclaims.

AC jet engine ceramic aircraft spark plugs were furnished, on request, for all three record-breaking planes. Thus, another notation goes into the list of outstanding aviation accomplishments in which AC Spark Plugs have shared.

Ceramic aircraft spark plugs owe their American origin and development to AC. This is only natural because, since its founding in 1908, AC has pioneered and developed most of the basic improvements in ceramic *automotive* spark plugs. This leadership is recognized by engineers who have specified AC Spark Plugs as original equipment in 2 out of every 4 cars, trucks, and buses built in America since 1932.

AC leadership is also demonstrated by the fact that—for utmost reliability, public acceptance, and repeat business—the trade looks to AC.

AC SPARK PLUG DIVISION
GENERAL MOTORS CORPORATION

JUNE, 1946

Aircraft Plug →



← Automotive Plug

SPARK PLUGS

When writing to advertisers please mention Motor Age

Washington Rulings and Regulations

28,489 Trucks Sold During Three Months

WAR ASSETS ADMINISTRATION recently announced that 24,489 trucks of all types were sold during a three-months' period that ended March 23.

The majority of sales, WAA said, were made to veterans who bought 12,075 vehicles. Federal government

agencies purchased 3,805, while state and local governments bought 1,212. All other Classes of purchasers, including dealers, bought 11,397 trucks, the report said.

Consumers goods that went to federal agencies from July, 1945, through March, 1946, amounted to \$35,800,000 in original cost, or approximately 7.3 per cent of total consumers goods disposals in that period.

Inventory of Surplus Auto Parts Is Completed

THE War Assets Administration has announced that inventory of all surplus automotive parts has been completed. The inventory disclosed that parts valued at approximately \$174,000,000 are available through the Detroit region.

All declarations of surplus automotive parts, accessories and maintenance equipment, are channeled to the Detroit region to form a central inventory.

Orders from all regions are cleared through the Detroit regional office. This procedure, WAA said, is designed to speed the disposal of parts with a minimum of delay.

Maximum Prices Set On Special Purpose Tires

MAXIMUM prices have been established for used special purpose tire tubes declared surplus by the armed forces and offered for sale in regular civilian channels, the Office of Price Administration announced.

The tubes are puncture proof and have an extra layer of rubber for added protection. Effective May 21, 1946, the retail ceilings are the same as existing ceilings for special purpose tubes covered by the retail tire regulation.

On all sales by a Government agency or wholesaler, the maximum price is 75 per cent of the retail ceilings.

War Assets Administration reports it has large quantities of these tubes,

(Continued on page 89)

(Advertisement)



Then Stock Up Now With United Hydraulic Brake Kits and Parts!

Are you finishing Hydraulic Brake jobs **promptly**? You can't, if your shelves are showing! Better fill them up now with the line that enables you to give really complete service. Eleven United Kits service 90% of all Master cylinder jobs . . . sixteen United Kits service 90% of all wheel cylinder jobs. Check also your supply of brake hose . . . and stop-light switches. Order from your NAPA Jobber.

Immediate Delivery on Bleeder Tanks!

Makes "bleeding" a one-man job. Complete coverage on all Master cylinders. Handy size— $2\frac{1}{2}$ gal. Services 10 to 12 cars without refilling. Automatic shut-off valve.



UNITED PARTS MFG. CO.

1250 W. VAN BUREN STREET, CHICAGO 7

HYDRAULIC BRAKE PARTS • BRAKE CABLES
SPEEDOMETER CABLES & CASINGS • FUEL & VACUUM PUMP PARTS



If You Think THESE Four are Well Developed . . . See Pages 76 and 77.



a WINNER...

*Amazing
new*

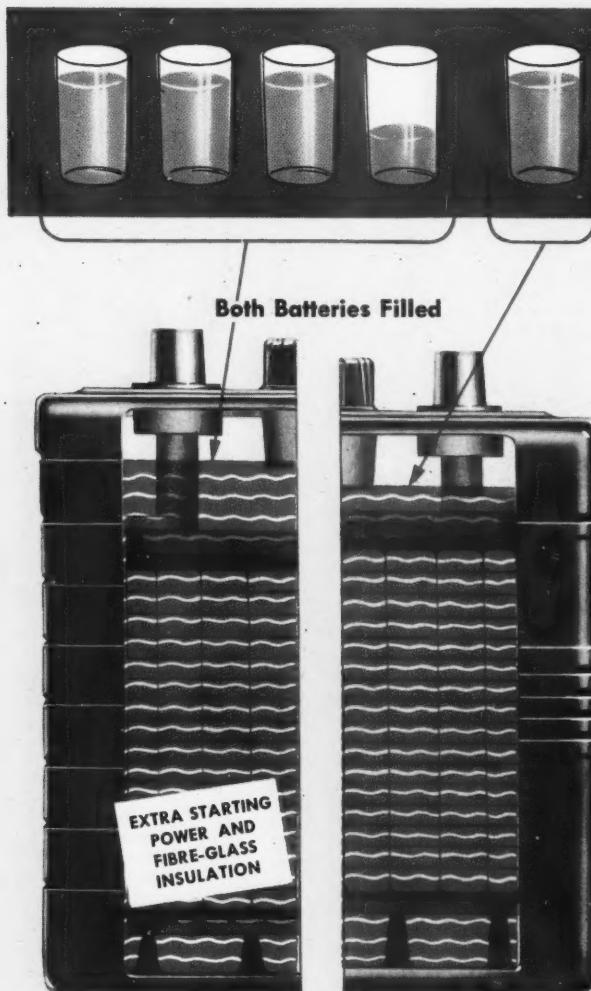
BATTERY NEEDS WATER

*Here's the new Battery that needs water only three times a year in normal car use.

Think how the revolutionary "Sta-ful" principle will make car-owners talk, look and buy. Remember, Auto-Lite also gives oversize electrical capacity plus fibre glass insu-

lation to deliver longer life than batteries without the Auto-Lite "Sta-ful" features.

The Auto-Lite "Sta-ful" battery is backed by the biggest promotion campaign in Auto-Lite's history. It's new, it's revolutionary... and it's yours if you sign up now.



Unique new design and construction gives Auto-Lite "Sta-ful" more than 3 times the liquid reserve of ordinary batteries.

Liquid Level After Equal Evaporation



ILLUSTRATIONS ABOVE SHOW THE RESULT OF EQUAL EVAPORATION IN THE AUTO-LITE "STA-FUL" BATTERY AND OTHER BATTERIES. AS SHOWN BY ILLUSTRATION ON THE FAR RIGHT, PLATES OF ORDINARY BATTERIES ARE EXPOSED SOONER BY WATER LOSS AND THEN BECOME INACTIVE FASTER.

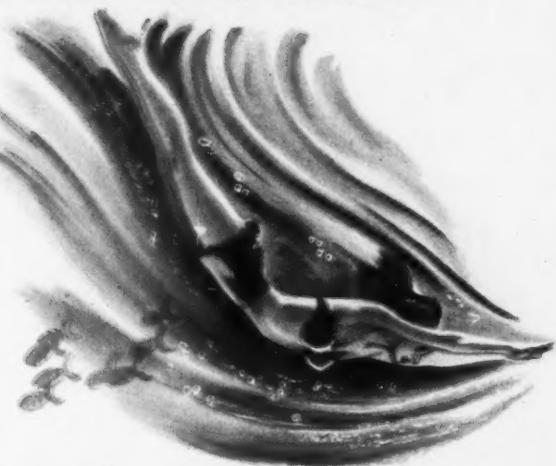
AUTO-LITE

ONLY 3 TIMES A YEAR* *Lasts longer, too!*

HERE'S HOW IT WORKS -

Submerged...

Plates stay wet longer because "Sta-ful" has more than 3 times the liquid reserve to help deliver capacity starting power, longer life.



Dry and Parched

Plates of ordinary batteries are exposed sooner by water loss and then lose power faster because the liquid reserve of ordinary batteries is less than one-third the liquid reserve of the amazing Sta-ful Battery.



No Battery Worries for your Customers

Auto-Lite "STA-FUL" needs water only three times a year in normal car use. You have less troublesome service work and "STA-FUL" long life and full power wins friends for you, boosts sales all along the line.

A-FUL
ES OF
ASTER.

BATTERIES

THE ORIGINAL EQUIPMENT LINE



GREATEST BATTERY... BACKED BY THE GREATEST PROMOTION

in Auto-Lite Battery History



Big National Auto-Lite Radio Show

Starring

DICK HAYMES

Helen Forrest

Gordon Jenkins

Orchestra and Chorus

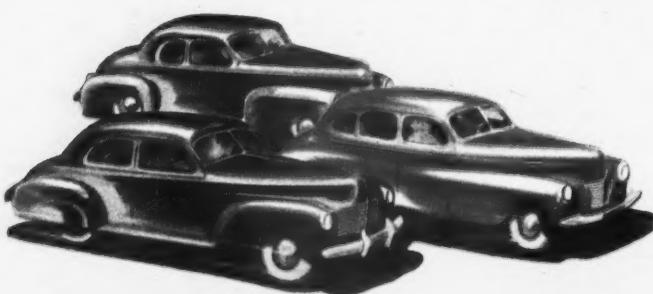
9:00 P.M. (E.T.)...EVERY THURSDAY NIGHT...CH



National Advertising

Big Color Packed Advertisements
in American Weekly, Rotogravure
and Leading National Magazine
and Farm Papers.

Action-getting Seasonal Promotion Kits—
Banners, Counter Cards and Window Trims



*Profit from
a Ready-Made Market*

1 in 3 Car Makers
Specify AUTO-LITE Batteries
As Original Equipment

AUTO-LITE BATTERIES

THE ORIGINAL EQUIPMENT LINE

Washington Rulings

(Continued from page 84)

located in various parts of the country, and available for sale by the regional offices of that agency. On all sales at retail, each tube must be tagged with the retail ceiling price.

Interim Increase on Compressors Improved

MANUFACTURERS of industrial air compressors, 10 hp. and under, including integral parts and accessories, recently received an interim price increase amounting to 18 per cent over October, 1941, prices, the Office of Price Administration reported.

Distributors may take the same percentage increase over existing ceiling prices, OPA said. Absorption of increases on other products carried by most distributors has so narrowed sales margins that further absorption is impossible, the agency said.

The action became effective May 21, 1946.

Ceiling Price Increase Announced for GM Cars

INCREASES in factory and retail ceiling prices for 1946 model Chevrolet, Pontiac, Oldsmobile, Buick and Cadillac passenger cars, all manufactured by the General Motors Corp. have been announced by OPA.

The new increases, which became effective April 30, 1946, reflect recent approved factory wage increases. Retail ceiling prices are increased only slightly.

The increases at retail range from \$16 to \$30 for both Pontiac and Oldsmobile models, from \$18 to \$38 for Buicks and from \$24 to \$60 for Cadillac models. The increase on the Chevrolet Stylemaster 4-door sedan which was the only Chevrolet model priced prior to recent wage increases was \$18.

In addition, OPA announced prices of other Chevrolet models for which prices had not been announced previously because they have only recently been put in production. The new prices, exclusive of the chassis price, are from \$51 to \$68 above 1942 prices. These prices include allowances for changes which range from \$49 to \$124.

The new ceiling prices for General Motors automobiles were computed in the same way as the maximum prices for Chrysler, Ford, Hudson and Nash models announced March 30, 1946. At that time, it was pointed out that the agency was considering the effect of the manufacturer's increased materials cost, such as steel and other mate-

rials price increases, and would later announce its decision regarding any further readjustment of car ceilings.

Bobbi-Kar Corp. Acquires Aircraft Plant Buildings

Two buildings formerly operated by the Consolidated Vultee Aircraft Corp. for the large production of war planes will be used for the manufacture of Bobbi-Kars by the Bobbi Motor Car Corp. at San Diego, Cal., according to an announcement from the War Assets Corporation in Washington, D. C.

The larger building covers 434,000 sq. ft. It also contains two mezzanine floors which will be used for small assemblies, fabrication, etc. The building in front has two floors with total area of 75,000 sq. ft. The south end of this building will be utilized for administration and general office; the north end for engineering and research on new products. In addition to the two buildings there are approximately 14 acres of ground around these buildings which will be used advantageously for customers', dealers' and visitors' parking and driveways.

You don't need 2 or 3
IGNITION STOCKS

ONE is enough -
if it's NIEHOFF

One NIEHOFF Service Stock will give you all the contact points, rotors, distributor caps, condensers, coils with brackets, brush sets and other parts you need to service all 3 Major Ignition Systems. And you can do it faster, because one catalog with a single code identifies all parts in a jiffy—the same easy-to-read code on NIEHOFF packages and cabinet shelves speeds up parts selection.

More than this, the engineering of all NIEHOFF parts to standard industrial tolerances or better simplifies installation. Rigid inspection at the factory guarantees quality and performance.

Cut your inventory investment today—save time, floor space, speed up your service and make more profit with ONE NIEHOFF Service Stock. Phone Your Jobber Now!

C. E. NIEHOFF & CO., 4925 Lawrence Ave., Chicago 30, Ill.
BRANCHES: 1342 S. Flower St., Los Angeles 15, Calif., 250 W. 54th St., New York 19, N. Y.

NIEHOFF
APPROVED QUALITY PRODUCTS

Nash-Kelvinator Coast Plant Manager Named

Appointment of Campbell Wood as works manager of Nash-Kelvinator Corporation's Pacific Coast plant at El Segundo, Calif., was announced recently by R. A. DeVlieg, vice-president in charge of manufacturing.

Supplementing the company's facilities in Michigan and Wisconsin, the plant is expected to be in operation on the assembly of Nash cars by late fall.

Wood, who has been with Nash-Kelvinator since 1925 in various ex-

ecutive posts, until recently was general manager of the firm's wartime aircraft Propeller Division.

Prior to World War II, Wood was director of utilities for the Kelvinator division, with offices in New York. Later he was assistant to the president in charge of government contract negotiation in Washington.

The new plant, adjacent to the Los Angeles municipal airport, was purchased by Nash-Kelvinator from the War Assets Corp. It was built in 1944 by the Defense Plant Corp., and was operated during the war by North American Aviation, Inc.

Wood and his staff are now head-

quartered at the Nash plants in Kenosha and Milwaukee, Wis. He will open offices in Los Angeles in the near future.

Wagner Electric Announces New Type Control Valve

A Wagner full-metering, hand-control valve for air-brake systems and other air-actuated equipment is now available from the Wagner Electric Corp.

The new valve is designed specifically as a single-barreled, hand-controlled unit, and is not merely an adaptation of another type of valve for hand-control use. It is compact enough to be easily installed on dash, steering column or other convenient location. The serrated handle of the valve adjusts to any position desired by the driver. Handle reaction and movement provide driver with a distinct "brake feel."

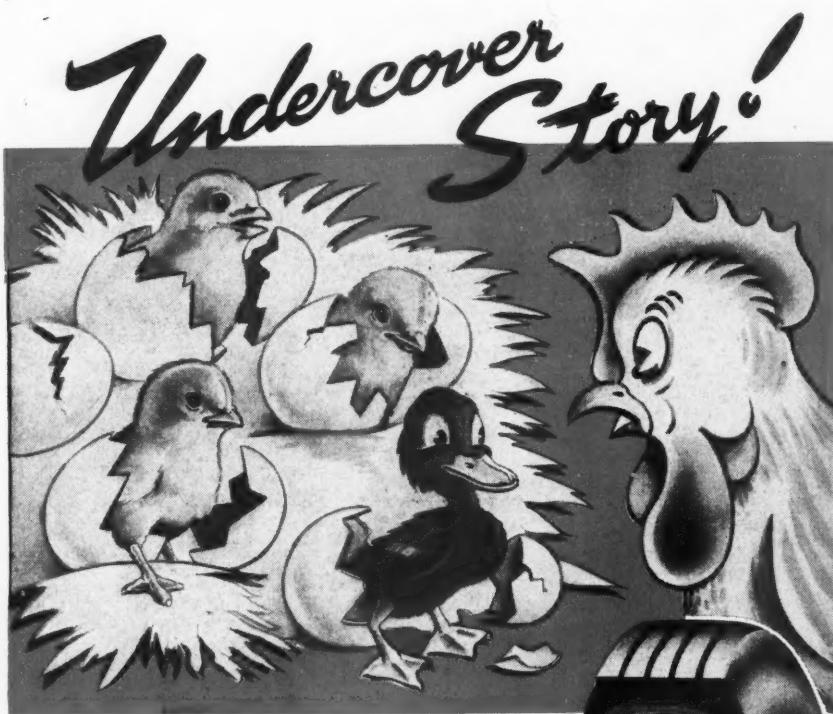
Used primarily for independent control of the trailer brakes in dual braking systems, the full metering action of the valve increases braking efficiency, aids driving on wet or icy roads, and assures positive control of tractor-trailer trains in mountainous country.

In addition to automotive air brakes, the valve is said to be ideal for manual control of other air-actuated units on commercial and industrial equipment. Further detailed information on the valve is available in bulletin KU-91, Wagner Electric Corp., 6400 Plymouth Ave., St. Louis 14, Missouri.

New Grey-Rock Catalog Describes Products

A new catalog describing the complete Grey-Rock line of brake linings and clutch facings has just been announced. Covering the entire Grey-Rock line for all passenger cars and light trucks, the new 28-page catalog includes Balanced Brakesets, Wyrbac Sets, Balanced Trucksets, Roll Linings, and Grey-Rock Shoe Exchange. Grey-Rock Clutch Facings are also included.

Complete brake lining and clutch facing recommendations for all makes and models of passenger cars are listed, including most 1946 models and light trucks, including Ford, Chevrolet, Dodge, and International Harvester. Dealer Catalog No. 646D, may be obtained from local Grey-Rock distributors, or from the United States Asbestos Division of Raybestos-Manhattan, Inc., Manheim, Pa.



Few people ever see their Durkee-Atwood Inner Tubes. These finer tubes roll along on millions of cars telling an undercover story of trouble-free travel. Resistant to puncture damage and tears, with unsurpassed air-holding ability, they are famous for dependable, hidden service.

Durkee-Atwood Company has manufactured custom-quality inner tubes for more than 20 years. Always made of the finest materials available* in a plant devoted exclusively to the production of tubes, the extra value of Durkee-Atwood Inner Tubes is recognized by distributor and car owner alike.

*Today—all Durkee-Atwood tubes are made of Butyl.

DURKEE-ATWOOD CO.
MINNEAPOLIS 13, MINNESOTA



DURKEE-ATWOOD INNER TUBES

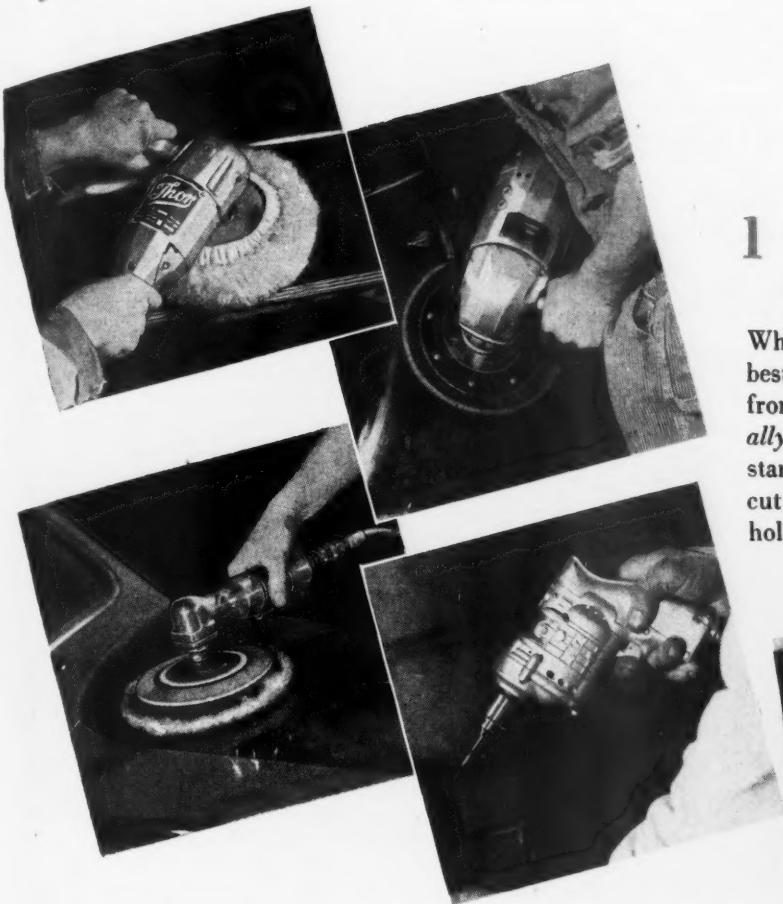
TIRE PAINT • V-BELTS • RADIATOR HOSE
RUBBER • PLASTIC • CHEMICAL PRODUCTS

Pharis Honors Old-Timers

Ten Old-Timers were recently honored at the Pharis Tire and Rubber Co. when they were made members of the company's first Twenty-Five Year Club. Members of the club have 26 to 34 years service.

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Louis*

Thor gives you these



2 PROVEN AIDS to PEAK-PROFIT OPERATION

1 Money-Making Tools to Fit YOUR NEEDS

Whether portable *electric* or *pneumatic* tools will best meet your needs, you get top tool efficiency from Thor. For, *only Thor* makes both types *especially designed for automotive shop service*. Long standard in factory production, they save time and cut costs on drilling, grinding, sanding, polishing, hole sawing and dozens of other jobs.



2 Money-Saving Help in TOOL SELECTION

Your Thor Jobber, working with Thor Tool Engineers, can be of real aid to you in choosing tools that will speed work and cut costs. Because *Thor* makes *both* air and electric tools, he can give you unbiased advice as to which type is best for your shop. And, because *Thor* makes a *complete line* of both types, he can recommend exactly the right size and style. Call on him for specific tool suggestions—he'll save you *money, time and trouble*.

INDEPENDENT PNEUMATIC TOOL COMPANY
600 W. Jackson Boulevard, Chicago 6, Illinois

BIRMINGHAM BOSTON BUFFALO CLEVELAND DETROIT LOS ANGELES MILWAUKEE NEW YORK

PHILADELPHIA PITTSBURGH ST. LOUIS SALT LAKE CITY SAN FRANCISCO TORONTO, CANADA LONDON, ENGLAND

Thor

PORTABLE POWER
TOOLS

PNEUMATIC TOOLS • UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS • MINING AND CONTRACTORS TOOLS

JUNE, 1946

When writing to advertisers please mention Motor Age

91

French Auto Engineer Introduces New Body Style

Jean Henri Labourdette, president, Societe des Ingénieurs de l'automobile (SIA) of France, addressed a small group of automotive engineers in Detroit on the eve of the Golden Jubilee in May, on the evolution of autobody styling since the earliest days of the industry. M. Labourdette, internationally known as a custom body designer, is a scion of a famous family of French carriage builders which has built custom cars for the Czar of Russia and Alfonso, king of Spain.

Apart from the evolution of body styling, M. Labourdette has given considerable study to the problem of visibility in motor cars. His latest contribution is the development of body structure called "Vutotol," without pillars at the front or side so as to provide an unobstructed view of the road. In this construction he employs tempered safety glass 11 mm (about 7/16 in.) in thickness for the windshield and side windows. It is claimed that this gives sufficient structural support for the roof panel. Photographs taken from the interior of a sedan so constructed show an

amazingly clear view of the surroundings, free from interference.

Electric Auto Lite Co. Participates in Jubilee

An automotive supplier company for 35 years with some of its divisions serving as suppliers for 50 years, The Electric Auto-Lite Co. was one of the major participants in the Diamond Jubilee of the Automobile held the first part of June in Detroit.

Saturday night, June 1, Auto-Lite devoted its whole radio show to the Jubilee. Dick Haymes, star of the program, interviewed Barney Oldfield, pioneer race driver. During the broadcast Haymes was in Hollywood and Oldfield was in Detroit. The interview was in the form of a two-way radio conversation.

During the gala Jubilee parade Auto-Lite attracted considerable attention with its float which depicted automobiling before the electric starting motor was invented. The float showed a man continually cranking his car amid the explosions of the motor and large clouds of smoke. Then too, his Missus, was in the back seat to show that back seat drivers existed even in those days.

Whiz Automotive Division Host to Visiting Group

The Whiz Automotive Division, R. M. Hollingshead Corp., was recently host to 12 officials and sales representatives of Motive Parts Co., Indianapolis, Ind. Visiting the various Hollingshead factories, the group witnessed various demonstrations. Lectures by Whiz laboratory officials and various Hollingshead sales executives were also presented. In the Motive Parts company group headed by Martin Larner, president, were James Shepherd, William Miller, John Dugan, Roy Weakley, Joseph Hanson, James Cary, Irwin Katz, Robert Burr, Joseph Burk, and Milton Harp. Entertainment for the group later included a dinner and theatre party at a Broadway hit in Philadelphia.



GATKE Grooved DURA-BLOK

A predominantly better brake lining that is distinctly different. The exclusive diagonal grooves eliminate extraneous matter—keep drums clean for uniformly perfect contact and smooth stopping that has never been equalled.

Here is brake lining with distinctive eye appeal—extra value your customers can see and talk about.

Ask your GATKE Jobber or write.

Brakes continue to be the most neglected service opportunity. That's why so many service men find special attention to brakes and the use of GATKE CUSTOME-BILT Brake Lining get extra service work and build good will.

By consistently asking, "May we check your brakes" they promote Safety and win brake service work. By skilfully applying GATKE Brake Lining they give extra value and build lasting good will.

Just try it and watch results.

Gatke
CUSTOM-BILT

BRAKE LININGS

BLOCKS SETS ROLLS SHEETS

GATKE CORPORATION

228 N. La Salle St., Chicago 1, Ill.



"Ya gotta' let me change your oil and lubricate your car. That's how the book said I'd make my biggest profit!"



ONE MORE REASON
Why it PAYS to Use
"Vibro-Centric"**
Valve Seat Grinders!



NEW "Gruv-Top"** PILOTS Mean More Profits For You . . .

PLUS

Faster, Better Work
Fewer Pilots Needed
No Time Lost Compensating for Worn Guides

New Black & Decker "Gruv-Top"** Pilots make "Vibro-Centric"** Valve Seat Grinders simpler, speedier, more precise than ever . . . Employing an expanding-sleeve principle that makes self-centering automatic, Gruv-Top Pilots help put new profits in your valve jobs. Here's why:

Vibro-Centric is Fastest Because: (1) Gruv-Top Pilots center themselves automatically, compensate for worn guides without lost time or motion; (2) Full-Powered Driver grinds at top speed—only a few seconds per seat; (3) Built-in Vibrating Action reduces stone loading and stone wear.

Vibro-Centric is Most Accurate Because: (1) Concentric Plunge Grinding is most accurate; (2) Gruv-Top Pilots find true center of valve guide; (3) Accurate Dressing Stand puts true angle on seating stone.

Vibro-Centric is Most Profitable Because: (1) Gruv-Top Expanding Sleeve Pilots eliminate a costly stock of "plus and minus" pilots; (2) "Factory-accuracy" does perfect work the first time; (3) Vibro-Centric speed does more jobs per day.

Exceptionally heavy demand for that kind of performance still keeps the supply of these Valve Seat Grinders scarce . . . but get complete information on new Gruv-Top Pilots from your nearby Black & Decker Distributor. And send for your free copy of our illustrated book, "The Principles of Valve Reconditioning," to: The Black & Decker Mfg. Co., 627 Pennsylvania Ave., Towson 4, Maryland.



LEADING DISTRIBUTORS EVERYWHERE SELL

Black & Decker

PORTABLE ELECTRIC TOOLS

* Trade-Mark Reg. U.S. Pat. Off.

Employment Allowance Aids Vet-Owned Shops

More than 200 veterans who have opened automobile repair shops and stations are operating with the help of self-employment allowances under the Servicemen's Readjustment Act (G.I. Bill), a Veterans Administration survey revealed.

Proprietors of general automotive repair shops numbered 167 of the total 220. Other types of automotive services represented were rental services, automobile top and body re-

pair shops, and battery and ignition establishments.

A total of over 200,000 veterans are on VA rolls for self-employment allowances, representing over 250 different types of vocations. Farmers account for 85 per cent of this figure.

The survey, which was the first of a series, included all claims filed from the beginning of the self-employment allowance program in November, 1944, until last January 1, a 14-month period.

If net earnings for a given month are less than \$100, allowances are

available to veterans engaged in independent enterprises for profit. VA pays the difference between net earnings for the month and \$100. Total amount of entitlement depends upon length of military service, with a maximum of 10 and two-fifths months if the veteran has had over 9 and one-half months of active duty.

Cleaning Tanks for Large Engines Announced

Two new cleaning tanks for Diesel, truck, tractor and other large engines is announced by Aeroil Products Co., 5701 Park Avenue, West New York, N. J. Used with the Hot Dip Alkali cleaning process, both tanks are fully insulated and heated from the inside by a patented, removable, immersion-tube system with the burner in a burner "well." The equipment may be heated by city gas, manufactured gas, liquefied petroleum gas or kerosene. Thermostatic controls are electrically operated from normal lighting circuits.

Model 25T has a dipping capacity of 270 gal. with a dipping space 54 in. long, 38 in. wide, and 30 in. deep. The inner shell is 14-gage steel. Model 34T has a dipping space 60 in. long, 38 in. wide, and 36 in. deep. The inner shell is 12 gage steel. Further details may be obtained from the manufacturer.

New Rust-Preventive

"Pennsalt RI-50," a new rust-preventive for use in water solution to give protection to iron, steel, or any ferrous metal for short periods before it is painted, enameled or otherwise processed, is announced by the Pennsylvania Salt Manufacturing Co., Philadelphia, Pa. Packaged in 25, 100, and 300 lb. fibrepak drums, Pennsalt RI-50 is designed to protect the metal in the short period after cleaning and before painting, enameling, etc. It requires no rinsing before painting.

"Teaser" Ad Campaign for New Prest-O-Lite Battery

A special "teaser" advertising campaign has been launched throughout the automotive trade press by the Prest-O-Lite Battery Co., Inc., in order to stimulate interest in the coming announcement of a new battery.

The campaign features the use of a "Three-Ball" and the question "Ask the Man Behind the Three-Ball." Prest-O-Lite salesmen now are wearing miniature billiard balls with the number three emblazoned upon it in their coat lapels.

Similar "Three-Ball" teaser advertisements are being heard coast-to-coast on the radio through spot announcements.

Details of the newly developed battery will be announced in June, company officials said.

Autopart
AUTOPART MANUFACTURING COMPANY
1525 SOUTH MICHIGAN AVENUE • CHICAGO 5, ILLINOIS

Mechanically New!

CENTRAL 360° WIRE HOSE CLAMP

5 STAR FEATURES!

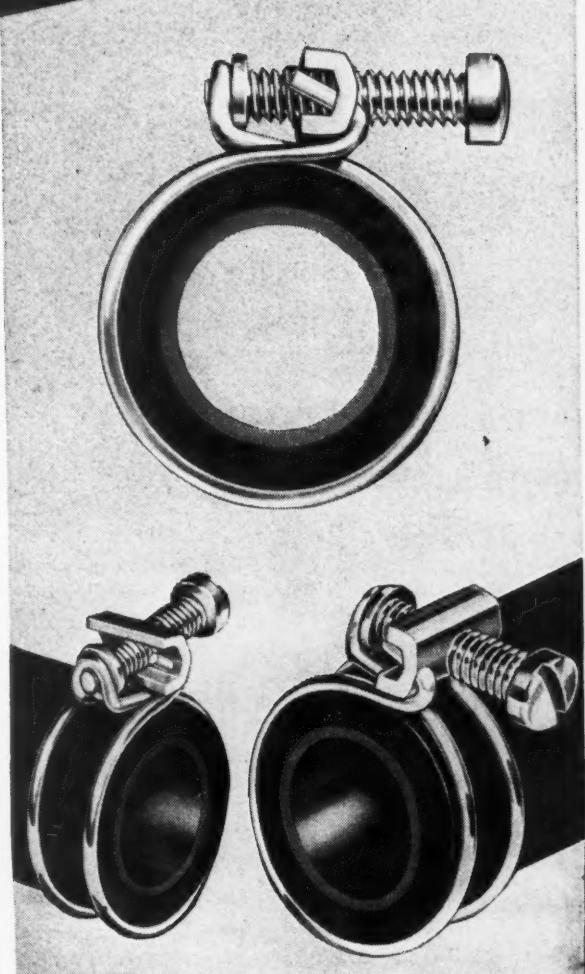
PUSH + PULL POWER! LOOK how the new, perfect mechanical principle of push plus pull clinches this clamp's powerful wire strands into a vise-like grip on the hose.

RUGGED STRENGTH! SEE how every part of the 360 is "oversize" for extra strength. For instance—compare the driving power of powerful screw with that found on the ordinary hose clamp.

NO BLIND SPOT! THE ABSENCE of a "tongue," found in all other clamps, completely eliminates the "blind," or "soft" spot—the primary cause of leakage in other clamps.

A PERFECT CIRCLE! DON'T OVERLOOK how, because of the new push plus pull principle, terrific pressure is exerted on every point, without damage to the hose. This 360 degree grip is positive leakage prevention.

UNUSUAL TAKEUP! COMPARE the exceptional takeup of the 360 with that of the ordinary clamp. This more than sufficient takeup guarantees elimination of leakage trouble, even on today's irregular synthetic hose.



Study the unique push + pull power of this sturdy clamp... and you'll discover WHY it HOLDS and HOLDS and HOLDS.

CENTRAL HOSE CLAMPS are now being successfully used by General Electric, International Harvester Company, Mall Tool Company, Waukesha Motor Company, Chrysler Corporation of United States and Canada, Chris-craft and many others.

CENTRAL EQUIPMENT CO.

902 S. WABASH AVENUE • CHICAGO 5, ILLINOIS

CENTRAL EQUIPMENT CO.
902 S. Wabash Avenue . . . Chicago 5, Ill.
Gentlemen: Please send FREE sample of your
360° Hose Clamp and your Bulletin No. 6300.

Name

Address

City State

North Carolina Dealers Hold Annual Convention

The North Carolina Automobile Dealers' Association will be headed during the coming year by Paul L. Abernathy of Charlotte, who was elected president of the organization at its 11th annual convention held at Pinehurst, N. C., May 12-14. Abernathy succeeds W. H. Wray of Gastonia.

Other officers elected during the convention include: Allen Mims of Rocky Mount, vice president; Fred Deaton of Statesville, secretary; and

Judson B. Smith of Greensboro, treasurer.

Resolutions adopted by the association included ones urging the National Association of Automobile Dealers to fight for legislation which "will safeguard the interests of the public and will protect the economy of the country against unjustifiable strikes which result in work stoppage and tremendous losses to workers and threaten disaster to industry" and for an amendment to the price control act which would prohibit the OPA from cutting the "traditional" price margin and trade discounts for dealers.

In other resolutions, the association called for the North Carolina Legislature to adopt legislation providing for stricter control over motor vehicle drivers in the interest of safety and for safety instruction for drivers and a periodical inspection of vehicles operating on the highways.

Speakers and their topics during the three-day session included: W. L. Mallon of Newark, N. J., president of the National Automobile Dealers' Association, who discussed activities of the association; Lyman W. Slack, vice president and general sales manager of the Packard Motor Car Company, "What's Wrong with a Seller's Market?" H. L. Wynegar of New York, president of the Commercial Credit Corporation, "The Motor Dealer in the Postwar Economy" Henry Grady Weaver, of Detroit, director of the Customer Research of the General Motors Corporation, "Is the Customer Always Right?" Governor Gregg Cherry of North Carolina, "A Highway Safety Program for North Carolina"; L. J. Buckland of New York, editor of "Buck Sez"; Russell N. Keppel, vice president of the Standard Oil Company of New Jersey; and Mrs. Pauline W. Horton, of Raleigh, representative of the U. S. Department of Labor.

Swing into this!

Yes, here's a method of adding to your profits the easy way . . . a small investment reaps better returns the SERCO way . . . and

HERE'S HOW YOU CAN INCREASE SERCO SALES

Tell your customers about SERCO's 16-year record of quality . . . the unconditional guarantee!

Write TODAY for catalog pages and descriptive literature.

Write for and use the special counter and window display pieces to attract sales.

Suggest SERCO products with every sale and take advantage of the seasonal SERCO customers.

STOCK AND SELL THE COMPLETE SERCO LINE

Every motorist is a prospect for one or more SERCO products.

**SERCO NOXO KI-MO
RUSGO REESO SOLVO
SHAMO**

PIN-UP of SERCO GIRL No. 6
Mailed FREE on Request. Order by Number

Service Supply Co.  PRODUCTS

1115 - 7th Street, Denver 4, Colo.

New Bulletin Issued

A new "Buda Jack Bulletin 1040D," describing and illustrating all the various models and types of ratchet, screw, and hydraulic jacks manufactured by the Buda Co., Harvey, Ill., is now available. The eight-page bulletin contains complete specifications and special features of each jack, plus an illustrated listing of other products manufactured by the company.

McQuay-Norris Acquires Two St. Louis Plants

McQuay-Norris Manufacturing Co. has purchased the buildings and equipment of the L. M. Persons Corp. and the Southern Electronics Co., both of St. Louis, Mo., according to an announcement by A. G. Drefs, McQuay-Norris president. These companies manufacture electric controls and other electrical devices, and henceforth will be known as the Electric Products Division of the parent company. L. M. Persons and other personnel will remain with the division.

During the war McQuay-Norris was a large producer of the VT Proximity Fuse which incorporated the most advanced principles of electronics. Experience thus gained prompted the entry of McQuay-Norris into the post-war electronic and electric products field, Drefs said. Plans for the expansion of the new division are being made.

Your **Wagner** Jobber
handles everything needed for servicing
hydraulic brake systems of any car or truck

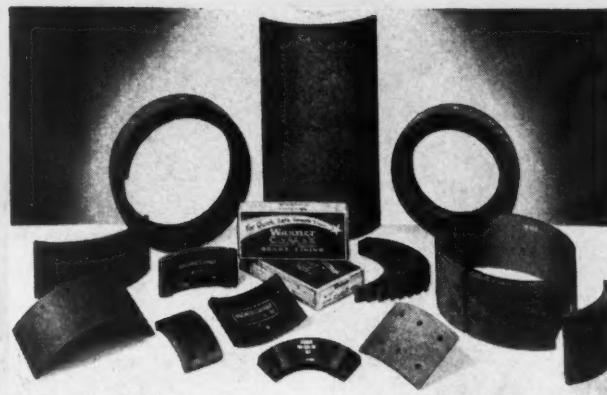
ALL from One Source*



★ WAGNER LOCKHEED HYDRAULIC BRAKE REPAIR KITS

There's no need for you to go to one jobber for hydraulic brake parts, to another jobber for brake fluid, and to a third for brake lining. There's a Wagner jobber near you who handles all three, thus saving you time and furnishing you with materials of the highest quality.

He handles Wagner Lockheed Hydraulic Brake Parts in kits and completely assembled cylinders, or individual parts.



★ WAGNER CoMaX BRAKE LINING

It pays to standardize on CoMaX. This popular line provides *complete* coverage for all passenger cars, trucks, buses, and for industrial brakes.

CoMaX is unsurpassed for quick, safe, smooth stops. It has exceptionally long-wearing qualities, is uniform in texture, is noncompressible, ageproof, and is easy on drums.

Available in rolls, sets, blocks, and slabs.

★ WAGNER LOCKHEED No. 21 HYDRAULIC BRAKE FLUID

Then, too, he handles No. 21 Brake Fluid, the best known, highest quality, most extensively advertised brake fluid on the market.

No. 21 is an *all-season* fluid for *all* hydraulic brake systems. It retains its highly efficient qualities under all driving conditions. It completely and properly mixes with all other approved fluids, furnishes necessary lubrication for working parts of the hydraulic brake system, and, in general, preserves the essential characteristics of the entire system.



Do YOUR part to check accidents. Co-operate with Chiefs-of-Police

Brake-Check Campaign. Check brakes of every car you service.

Wagner Electric Corporation, 6498 Plymouth Ave., St. Louis 14, Mo.

A46-1

LOCKHEED HYDRAULIC BRAKE PARTS AND
FLUID • NoRoL • CoMaX BRAKE LINING



Wagner  Electric

AIR BRAKES • TACHOGRAPHS • INDUSTRIAL
BRAKES • ELECTRIC MOTORS • TRANSFORMERS

A MESSAGE FROM THE

ANNOUNCING

a fair and equitable

CAR DISTRIBUTION PLAN

for the benefit of Chevrolet dealers
in all parts of America . . .

-scheduled to remain in effect until October 31, 1947

THE Chevrolet Motor Division of General Motors Corporation announces a master plan for the distribution of new cars to Chevrolet dealers throughout the nation which is designed to enable them to meet the buying demands of all sections and all groups in the fairest possible way.

It is the goal of Chevrolet to meet the motoring requirements of the nation in the most uniform manner, thus assuring an even flow of cars into all communities,

large and small, in proper proportion to the demand for them. The Chevrolet Dealer Distribution Plan is designed to make certain that the rights and equities of every Chevrolet dealer—and, through the dealer, every Chevrolet buyer—are protected, with equal justice to all groups and all parts of the country. The objective of the plan is to meet, insofar as we are able to do so, the motoring needs of the men and women of metropolitan America—of agricultural America—of all



CHEVROLET MOTOR DIVISION

America—with complete fairness and impartiality, and as swiftly as the many Chevrolet plants can turn out the cars and place them in the hands of our dealers.

BASED ON DEALERS' 1941 MODEL SALES

Under the plan, allotments of new cars will be based on the individual dealers' sales of 1941 model cars. The program embraces the entire country, and will remain in effect until October 31, 1947.

Establishment of this carefully developed Dealer Distribution Plan not only recognizes the Chevrolet dealers who met their responsibilities to the public during the war by maintaining active service facilities, but also provides every Chevrolet buyer—through the equitable distribution of cars to every Chevrolet dealer—the opportunity to be served in the most satisfactory manner.

The Chevrolet Motor Division's great objective of meeting the motoring needs of all customers in the fairest possible way is, of course, in the final analysis, the direct concern of all Chevrolet dealers. We believe that every Chevrolet dealer will deliver cars in accordance with his best judgment, taking into full consideration the needs of all motorists of his community and the importance of meeting the vital requirements of those whose transportation needs are extremely serious.

Needless to say, Chevrolet dealers cannot fill the orders of all buyers of new Chevrolet cars simultaneously or overnight, much as they would like to do so, but they will meet the unprecedented demand for new Chevrolets just as soon as this becomes possible.

FAIR AND IMPARTIAL TREATMENT TO ALL

It is our firm belief that through this carefully developed Dealer Distribution Plan more people can be satisfied—and satisfied more quickly—than through any other method of new car apportionment, because it will result in the most accurately proportionate and speedy distribution of new cars to Chevrolet dealers and, through them, to the public.

The Chevrolet Motor Division is confident that Chevrolet dealers appreciate the complete fairness which guides our distribution of new cars to them, and that they will cooperate fully in following the same broad, equitable principles in the local distribution of new cars which they receive under the Chevrolet program.

Meanwhile, the Chevrolet Motor Division wishes to express its sincere gratitude for the patience and good-will which both the public and Chevrolet dealers are displaying during this period of car shortages.

CHEVROLET MOTOR DIVISION, GENERAL MOTORS CORPORATION, DETROIT 2, MICHIGAN



Legally Speaking

A lawyer's interpretation of federal and local court decisions of interest to repairmen and car dealers

Retail Hours

Is a city ordinance valid that prohibits a certain class of retail establishments from being open for business beyond certain hours prescribed by the city?

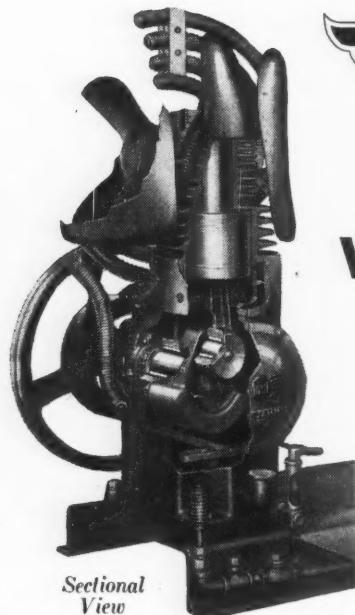
An ordinance of that kind in an Ohio city was upheld by the courts. The ordinance did not restrict the operation of all retail businessmen to the prescribed hours, but only that class of establishments named in the ordinance. While sustaining this or-

dinance as a valid exercise of the police power of the state and city, the Ohio court nevertheless pointed out that similar ordinances had been held unconstitutional in other states.

The power of the city to regulate retail business in this respect seems to depend primarily upon the view taken by the courts of the state in which such a regulatory ordinance is attempted.

Repairmen affected or likely to be affected by such laws should be prepared to show that city regulation of hours of business of their shops is unreasonable. The validity of such laws is based on the theory that they are reasonably necessary and appropriate for the protection of the health, morals, safety and welfare of the people. If they are not reasonably necessary for that purpose, they are not valid as a legitimate use of the so-called police power. (*Friedman vs. City of Cincinnati*, 20 Federal Supplement, 531.)

New, Simpler, Better!



Sectional View



WINDJAMMER Air Compressor

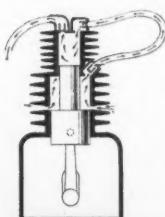
- Less than half the parts to wear
- Less than half the chances of failure

It's entirely new and different, simpler than ever before! Doyle's ingenious and exclusive dual cylinder two-stage air compressor cuts moving parts in half. Greatly reduces wear, friction and inertia losses. Chances of failure are cut, too. There are two less connecting rod bearings, one less connecting rod and piston pin. Only one crank throw. Use of heat-treated

aluminum alloy for the connecting rod and tandem piston further reduces the reciprocating mass, holding vibration and power consumption to a minimum. That's why the WINDJAMMER is outstanding for its high delivery of air, its economy of operation, long life and reliable service.

High and Low Pressure Cylinders on One Center Line

Both high and low-pressure cylinders cast integrally — with the two cylinder bores on the same center line — makes the WINDJAMMER simpler, more compact, and less liable to service troubles. The exclusive Doyle valve — of the capsule type — insures quick access for repair or replacement, and holds servicing time to a minimum.



DOYLE
MANUFACTURING
CORPORATION
Syracuse, N.Y.

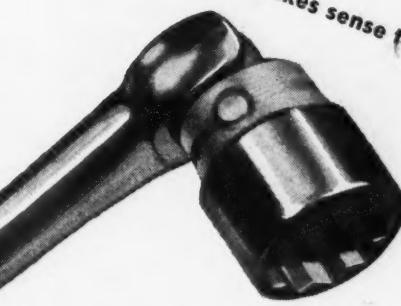
See your Jobber today or write
Dept. MA-6 for Complete In-
formation.



"I just found out what her premium is, and, frankly, she's going to be pretty tough competition!"

"I BOUGHT NUGGETS* BEFORE THE WAR"

"THEY CALL ME LUCKY JIM around the shop when they see me twirling these light, fast-working NUGGETS. Yes sir, I really hit the jackpot when I bought NUGGETS — fewer wrenches to carry around — no fussing with a lot of duplicate sockets and handles — and they're so light I'm still going strong at quitting time. Maybe I'm tender-hearted but sometimes I feel sorry for the other fellows when I see them losing time using a $\frac{3}{8}$ " drive wrench in some tight spot then fumbling around finding a $\frac{1}{2}$ " drive handle and socket to take care of a heavy pull. NUGGETS one double-duty drive for all work sure makes sense to me."



BLACKHAWK created NUGGETS before the war, but government restrictions on HEXITE steel halted production. Now Blackhawk is rushing to get NUGGETS to new buyers as soon as possible. BUT due to steel strikes it may be several months before HEXITE steel is available for mass production of NUGGETS. However, Blackhawk wishes to protect the investment of present NUGGET owners. So if you have lost any of your prewar NUGGETS see your Blackhawk Jobber. He will arrange delivery of replacements.

A Product of BLACKHAWK MFG. COMPANY
Dept. W666, Milwaukee 1, Wis.

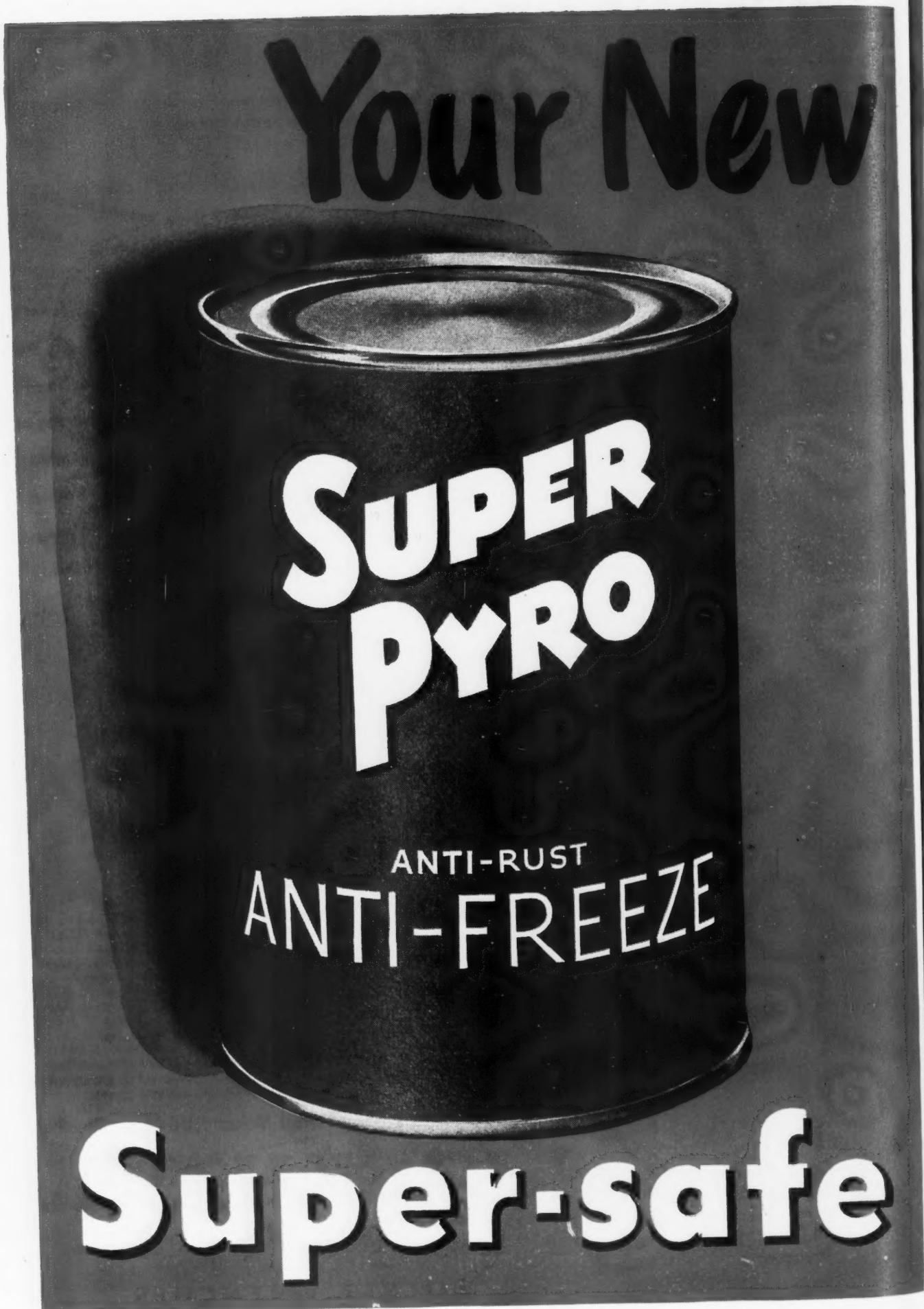
Blackhawk's Famous HEXITE Steel Makes NUGGETS* Possible.



Why Buy Two when ONE does the Job

BLACKHAWK NUGGET* SOCKET WRENCHES

*Reg. U. S. Pat. Offce



SuperSeller!



LESS SUPER PYRO now beats any temperature—and you can prove it!



New freedom from odor, using SUPER PYRO!



New low price of SUPER PYRO makes motorists cheer!



Rich new purple and gold package sings out SUPER PYRO quality!



Biggest national magazines plus local newspapers plus outdoor posters now advertise SUPER PYRO!



Now add safety from freeze-up—safety from rust—safety from fast boil-off—and you'll sure have a new super-seller in SUPER PYRO.

You'll have new profit—with new safety for your business reputation. So you'll be super-smart to get your order in right now for your new SUPER PYRO anti-freeze. **U. S. INDUSTRIAL CHEMICALS, INC.**

SUPER PYRO

Legally Speaking

(Continued from page 100)

merchandise at a price violating the Robinson-Patman Act, may the merchant discriminated against in such a sale avoid payment on the ground that the contract of sale is illegal and thus unenforceable?

The New York Supreme Court decided that the buyer could not avoid the payment of the contract price on this ground, but that his proper remedy would be to proceed for an injunction or for damages under the

provisions of the Robinson-Patman Act.

This decision is probably good precedent in any state which has no state anti-price discrimination act. However, many of the state anti-price discrimination acts provide that any contract entered into in violation of the act shall be illegal and void. The Arkansas law, for example, provides that any contract in violation of the anti-price discrimination act of that

State shall be "an illegal contract and no recovery thereon shall be had."

Repairmen in states without anti-price discrimination laws, therefore, cannot refuse to pay the contract price in a sale in which they are the victims of price discrimination, according to the New York decision. Repairmen in states with anti-price discrimination laws like the Arkansas Act cannot be required to pay the price in sales in which they have been discriminated against with respect to price. (*Progress Corporation vs. Green, New York Supreme Court, First Department, 163 Miscellaneous, 828.*)

NOW YOU CAN STOP SHOCK ABSORBER LEAKS!

Shock-Seal
PATENT APPLIED FOR
SHOCK ABSORBER REPAIR SET
For Delco Lever-Type Only

Repairs Leaking Shock Absorbers Right On the Car!

EASY TO INSTALL

(1) Chisel Thin Metal Cap Off

(2) Install Shock-Seal Here Clamp Tightly

Solves "Come-Back" Problem!

The Shock-Seal puts shock absorber repairs in the popular price class. Enables you to get more repair jobs because of lower cost. Does a bang-up job that you can guarantee for 10,000 miles or more. Just chisel off gland or cap and replace with Shock-Seals. Takes only a few minutes and pays you a fat profit. No front-end equipment needed! Get started today!

If Your Jobber Cannot Supply You, Mail Coupon

2 Sets.. \$3.50 Dealer Net

Enough for front end of one car

MICRO-LINOR SERVICE CORP'N
1635 W. Fort St.
Detroit 16, Mich.

Manufacturers of
"One Man" Toe-in Gage

Super-Easy Camber-Caster Gage

Micro-Linor
Wheel Alignment Analyzer

MICRO-LINOR SERVICE CORP'N
1635 W. Fort St.
Detroit 16, Mich.

Ship me _____ sets of Shock-Seal Repair sets, as checked below, C.O.D., plus postage. (Shipped prepaid if you send check with order).

— 2 Sets, \$3.50 — 4 Sets, \$7.00 — 6 Sets, \$10.50

Name _____

Address _____

City & State _____

My jobber is: _____

Trade Name

HOW long and how far is the owner of a patent protected in the exclusive use of the trade-name of the patented article?

According to a recent Federal decision, it seems to depend somewhat upon whether the trade-name of the patented article becomes "generic" during the life of the patent.

"We affirm," said the United States District Court in a recent case, "that where, during the life of a monopoly created by a patent, a name has become the identifying and generic name of the thing patented, the name passes to the public with the cessation of the monopoly."

This apparently means that if, during the life of the patent, the trade-name comes into general use to identify and describe articles of the general character of the patented article, the name passes into the so-called "public domain" when the patent expires, and the original owner of the patent no longer has the exclusive use of the trade-name which has in the meantime become what the court calls "generic." (*Ironite Company vs. Cement Waterproofing and Ironite Company*, 20 Federal Supplement, 603.)

Micrometer Catalog

Of interest to buyers and users of micrometers is the new Catalog No. 17 recently released by the Central Tool Co., of Auburn, Rhode Island. The new publication is completely illustrated, describing in detail the line of Central "Certified Accuracy Inside and Outside Micrometers."

In the new line are two sets of micrometers which are designed for the automotive mechanic. The first is Set No. 808, which has a range of 1 1/4-8 in. and comes complete with knurled extension handle and leather case. The second is Set No. 745 RL, consisting of four individual micrometers completing a range of 0 to 4 in. which is supplied with case and standards.

Ask your automotive jobber for Catalog No. 17 or direct your request to The Central Tool Co., Auburn, Rhode Island.



After Vulcanizing Tires and Tubes
for 3 Years
Here's Why I Say—

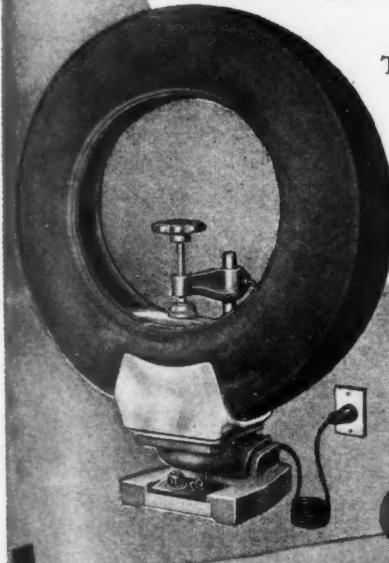
There'll Always Be Big Money in This Extra Service!"

● "My customers have the habit of getting their tires and tubes repaired the Inland way. They expect me to offer this service from now on.

"They now know that injured tires and tubes they would have thrown away before the war have many miles of safe, trouble-free driving in them when I give them Inland Repairs.

"And also Inland Equipment and Materials put me in a better spot as a new tire dealer... make it possible for me to offer better trade-in allowances because I get a second profit out of most deals—by vulcanizing and selling the used tires way above their unrepainted value."

Handle BOTH Tube and Tire Vulcanizing Jobs with ONE Press . . .



Thousands of service station operators have found that Inland Vulcanizing Units offer two steady sources of income. First, there's tube repairs—and car owners are thoroughly sold on the idea of vulcanized tube repairs. Second, there's tire repairs. And you can handle this extra business in your shop with the same press. You need get only tire molds, sandbags, and a few other accessories to turn out professionally perfect tire jobs. Complete unit occupies little space . . . handles tread and side wall repairs on passenger cars up to 7.50x16.



INLAND

INLAND RUBBER CORPORATION

A Subsidiary of Minnesota Mining & Manufacturing Company

INLAND RUBBER CORPORATION
33 So. Clark St., Dept. M-46, Chicago 3, Ill.

Please send me information on Inland Equipment and Materials for Tire and Tube Vulcanizing.

Name.....

Address.....

Town.....

New duPont Lacquer Is Produced

A new lacquer with a deep glowing lustre and said to be the "most durable ever developed," is announced to the automotive industry, by E. I. duPont de Nemours and Co., Wilmington 98, Del. Called "Duo" Metalli-Chrome nitrocellulose lacquer, the new lacquer is said to achieve color and color effects never before produced. The deep-glowing lustre of the new finishes results from the high degree of translucency of the Metalli-Chrome films. Light penetrates and is reflect-

ed back to the eye from within the surface of the film. On conventional coatings, light strikes and is reflected back from the outer surface. In addition, the translucent metallics offer a startling color variation as the lighting alters or the angle of vision shifts. Burnished gold and shades of bronze are possible with the new lacquer.

Differing radically from the so-called metallic finishes popular before the war, the majority of the new colors are made possible by a new pigment material—ferric hydroxide—never before used for this purpose.

The reason the new lacquers are translucent, it is explained, is the extremely fine particle size of the pigments used. It is estimated that it would take half a million of the ferric hydroxide particles side by side to measure one inch.

A large variety of colors is possible with the new lacquer. More than 200 grays, greens, and browns, comprising the color families, were recently exhibited.

The extreme durability of the Metalli-Chrome is said to have been totally unexpected since it is well known that sunlight readily breaks down a transparent unpigmented lacquer in a few hot summer days. The durability of conventional lacquers is dependent to a large degree on the opacity of standard pigments which prevent destructive ultra-violet light rays from entering the film. This is not the case with the new Metalli-Chrome colors.

Application of the new Metalli-Chromes to automotive bodies will be by the usual lacquer finishing procedures. They will be available for original factory finishing as well as for shop re-finishing.

Rubber Tape and Splicing Compound Catalog

A new catalog section on its lines of rubber tapes and splicing compounds has just been published by The B. F. Goodrich Co., Akron, Ohio, and is now available upon request.

Featured is the Two-In-One tape, which weatherseals wire or cable splices in one operation. A single layer provides adequate insulation for lines carrying up to 220 volts, a double layer on lines up to 650 volts.

(Advertisement)

Logan A NAME TO REMEMBER WHEN YOU THINK OF BETTER LATHES

RUBBER CUSHIONED COUNTERSHAFT

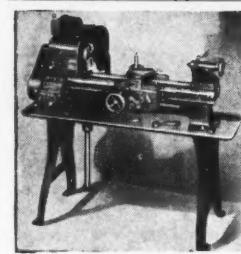
WHERE FIVE RUBBER CUSHIONS ASSURE SMOOTH OPERATION IN LOGAN LATHES

A TWO RUBBER CUSHIONED BEARINGS, one at each end of the two hinge points connecting countershaft and headstock.

B ONE RUBBER CUSHION between motor mounting base and pedestal.

C TWO RUBBER BUTTONS cushion the cone pulley guard.

ABSORBS VIBRATION, GIVES LOGAN LATHES MAXIMUM SMOOTHNESS AND ACCURACY IN OPERATION



Quick Change Gear Lathe

SPECIFICATIONS COMMON TO ALL LOGAN LATHES . . . swing over bed, 10½" . . . bed length, 43½" . . . size of hole through spindle, 25/32" . . . spindle nose diameter and threads per inch, 1½"-8 . . . 12 spindle speeds, 30 to 1450 rpm . . . motor, ½ hp, 1750 rpm . . . ball bearing spindle mounting . . . drum type reversing motor switch and cord . . . precision ground ways, 2 V-ways and 2 flat ways.

K-2-M

LOGAN ENGINEERING CO. CHICAGO 30, ILLINOIS



One is GOOD, but FOUR are better . . .
Turn to Pages 76 and 77.

ANOTHER ORIGINAL
McAleer
QUALITY-CONTROLLED
PRODUCT

Sells Itself

This "SILENT SALESMAN" Will Keep Your Cash Register Ringing

Three out of every five men who patronize your place of business are sportsmen or craftsmen—men who definitely have a need for "PRO" . . . the new super-cleaner for fine metals and plastics. "PRO" was developed expressly to remove the ravages of corrosion on golf clubs, fishing reels and tackle, knives, guns and other outdoor sports equipment. "PRO" is unexcelled for removing rust "blush" and corrosion and conditioning fine tools such as planes, chisels, saws, squares, surface plates, etc. Polishes to a high lustre—cannot scratch the finish. It's quick—effective—safe. Nothing like it.

"PRO" is a natural for service stations, garages, car dealers, accessory stores seeking additional sources of revenue from car owners through the sale of non-automotive products.

It's a high profit item too—with attractive discounts—another McAleer money-maker. Just put a "PRO" display on your counter, in your window—wherever customers can see it—the product sells itself. Order your introductory stock and "PRO" Display today.

These Other Sales "Naturals" are Proving—

"YOU CAN MAKE MONEY WITH MCALEER"



Safely Carries \$4.50 Per Pair. Plus 1½ Excise Tax.

FASTEST SELLING AUTO ACCESSORY IN YEARS

Every motorist has a vocational or pleasure need for the new McAleer Side Car Carriers. Dealers everywhere are reporting sell-outs the first day they've offered them. Carries anything too long to go inside the car. Fits most cars. Can't mar finish—easily attached, as easily removed. Sells on sight—real money maker. Stock 'em—display 'em—you'll sell 'em.

CLEAN UP MORE MONEY THE VIBROMATIC WAY

You can thoroughly vacuum clean a car interior in 5 to 10 minutes—make extra money featuring Vibro-Cleaning as a "Combination Special" with lubrication, car wash or polish jobs. Vibro-Cleaning Service attracts customers—builds business—boosts service sales—increases profits. You'll wonder how you ever did without one.



COSTS ONLY \$28.95 COMPLETE

FILL OUT AND MAIL TODAY

McALEER MANUFACTURING COMPANY
ROCHESTER, MICHIGAN

Date _____

Please ship C.O.D. Introductory "PRO" Deal to include 24 1-oz. jars, 12 3-oz. jars plus "PRO" Counter Display Merchandiser—less Dealer's Discount.

Please ship C.O.D. _____ pairs Side Car Carriers less Dealer's Discount.

Please ship C.O.D. _____ Vibromatic Cleaners.

Please send Dealer's Proposition on other money-making McAleer Products.

Company _____ Name _____

Address _____

City _____ State _____

Automotive Division
MCALEER MANUFACTURING CO.
ROCHESTER, MICH.
AUTOMOTIVE — INDUSTRIAL
HOUSEHOLD PRODUCTS
McAleer Manufacturing Co., Ltd., Chatham, Ontario

Commercial Solvents Corp. Constructs New Plant

Commercial Solvents Corp. is now constructing a new building at Terre Haute, Ind., which will be used exclusively to package the products of the Specialties Division. The structure is the first unit to be built on a thirty-acre site recently acquired to provide for the expansion program of this division.

The building embodies the latest construction in brick and steel, and is entirely fireproof. The two-story plant will be 100 ft. x 300 ft., and will contain modern mixing machines and

automatic packaging equipment. It is strategically located between two railroads, with spurs running directly into the building to provide facilities for loading ten cars simultaneously.

The main products of this division are anti-freeze and cooling system chemicals sold under the brand names of Nor'way and Peak. At the present time these products are being packaged by Commercial Solvents at plants in New Orleans, Peoria, and Terre Haute.

The new packaging plant will be in operation July 1, according to Paul R. Smith, manager of the Specialties Division of the corporation.

Body Engineers Form New Organization

The formation of a new engineering society called "The American Society of Body Engineers, Incorporated" has been announced by its president, I. Louis Carron, body engineer of Detroit Harvester Co. The society has been organized as a non-profit corporation with national headquarters in the Rackham Memorial Building in Detroit. The organization is composed entirely of leading body engineers from virtually all the companies in the automotive industry.

Carron states that the forerunner of the present day body engineer was a carriage maker, an artisan who at the turn of the century was capable of designing and building his own carriages. He had to be an artist as well as a first class wood worker and upholsterer.

Today, a successful body engineer must be well versed in the fundamentals of engineering, and in addition, must be an artist.

A technical convention will be held in October by the American Society of Body Engineers, Inc., in the Rackham Memorial Building with Carl W. Cenzer as general chairman.

Fire Extinguisher Choice Requires Special Care

Selection of fire extinguishers, unless obtained directly from the manufacturers or their authorized agents, requires special care at the present time because equipment now available from other sources as the result of government release of surplus extinguishers may no longer be fit for service.

Some of the models carry only "EAS," or temporary, approval by the Underwriters' and Factory Mutual Laboratories. These are the sub-standard devices manufactured as an emergency measure during the wartime shortage of critical materials. They are readily recognized by the letters, "EAS," which stand for "emergency Alternate Specifications" on the nameplate. Also such equipment bears a decalcomania rather than the standard metal nameplate. Emergency approved extinguishers were not expected to stand up as long as the standard types and by now may be wholly unserviceable.

Other equipment released as surplus, though standard at the time of its manufacture, may now be dangerous to use because of mishandling or improper maintenance since it left the factory. Dents, bulges, signs of corrosion, evidence of soldering or other repairs are indications that the equipment should not be used until it has been properly repaired and tested by the manufacturer.



**NEW AGITOR COLD
PARTS CLEANING SYSTEM**

*Specially
Designed for
FLEET, BUS
AND TRACTOR
SERVICE
DEPARTMENTS*

MODEL J-75

**Gaining nation-wide acceptance
in service departments everywhere for
fleets, buses and tractors. No little wonder
mechanics and operators alike approve of Agitor—its
fast, safe cleaning action requires no heating—
cuts hours off repair and overhaul jobs—gets 'em on the
road sooner—helps keep them running longer.**

**Model J-75 combines Air-Agitation and Hose Cleaning
in a heavy-duty all-steel unit—for
cleaning motor blocks, crankcases, axles, transmissions,
differentials and other parts. Portable Handi-Pump
is also ideal for liquid transfer tasks...
empties a 55 gallon drum of solvent in about 9 minutes.**

*Agitors and Agitene Solvents are available from
Automotive Distributors in cities everywhere.*

**GRAY-MILLS CORPORATION
1943 Ridge Avenue Evanston, Illinois**

SEND FOR NEW CATALOG

Gray-Mills Corporation, Evanston, Ill.
Please send Agitor Catalog.

Name _____

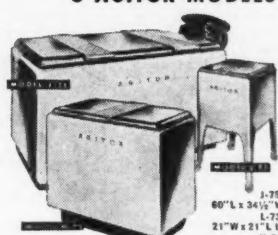
Position _____

Company _____

Address _____

City _____ State _____

3 AGITOR MODELS



J-75
60" L x 34 1/2" W x 38 1/2" H
L-73
21" W x 21" L tank 18 1/2" D
H-71
38" L x 21" W x 34 1/2" H



BARRETT SAYS:

Stop Brake Grab, Side-Pull, Lining Wear!

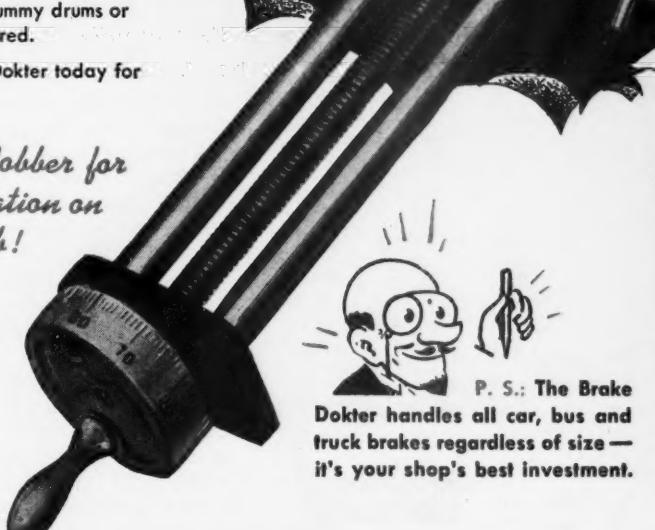
**The Brake Dokter
Cures Most Brake Troubles
Faster—Easier!**

The Brake Dokter detects and corrects 98% of all brake faults right on the axle — eliminates second and third come-backs for readjustment — cures diving, swerving, grabbing, chatter, hard pedal, drum-scoring, rapid wear, noises — cuts one to two hours from every relining job and does it better. Weighs only a few pounds — one man, without special training, can do a perfect factory brake job easier and in less time than by any other method. No other gauges, dummy drums or other gadgets required.

Order your Brake Dokter today for delivery soon!

*Ask Your Jobber for
a Demonstration on
a Tough Job!*

THE BRAKE DOKTER
centrifuges shoes, grinds to give 100% drum contact, and adjusts for proper clearance. Any size brake assembly from 7 to 24 inches.



P. S.: The Brake Dokter handles all car, bus and truck brakes regardless of size — it's your shop's best investment.

**MAIL THIS COUPON
FOR MORE INFORMATION** ➤ ➤ ➤

THE BRAKE DRUM LATHE
machines, grinds and hones all types and sizes of car, bus, truck and aircraft drums. Portable for field use, stationary for the shop.

THE BRAKE RELINER
and grinder has ample power and leverage for delining, relining, countersinking, drilling and grinding any size brake shoe.

BARRETT EQUIPMENT COMPANY
21st and Cass, St. Louis 6, Mo.

Please send catalog, prices and other information about Barrett Brake Service Equipment.

Company _____

Address _____

City _____ State _____

Signed _____

BARRETT EQUIPMENT CO.
The World's Finest Brake Service Equipment
TWENTY-FIRST AND CASS ST. LOUIS 6, MO.

New Hydraulic Controls For Rear Engine Vehicles

Considerable speculation has been aroused among automotive engineers, writers, and the public as to whether or not future cars will have bodies of tear drop design, front wheel drives, automatic transmissions, or engines mounted in the rear. In production now, and with future needs in mind; a safe, sturdy, and dependable hydraulic system of operating throttle and clutch on vehicles with the engine mounted in the rear has been engineered, tested, and is now manufac-

tured by the Bendix Products Division, Bendix Aviation Corp., South Bend, Indiana.

At the present time, equipment for rear engine mounted buses is in production; and special consideration is being given to installations for the proposed "Tilt Cab" under floor engine truck designs. Similar controls for all types of vehicles are, of course, entirely feasible. As installed and operated, the same underlying principles used in actuating the Bendix hydraulic brake have been adapted to clutch and throttle controls, and with a minimum of working parts.

Generally speaking, a fluid reservoir, a master control cylinder mounted beneath the floor boards, a slave cylinder, and a connecting hydraulic line make up the complete installation. The master cylinder is connected to the conventional accelerator pedal or throttle. The slave cylinder is connected directly to the throttle lever on the carburetor and pressure exerted on the foot pedal opens the carburetor throttle as in the conventional manner.

The Bendix hydraulic clutch control works on the same principle. The equipment consists of a fluid reservoir, a master cylinder connected to the clutch pedal, a slave cylinder, and a connecting hydraulic line. The slave cylinder may be mounted on the engine, the clutch housing, or on the transmission housing, with an adjustable rod connecting the slave cylinder piston rod to the clutch operation lever. Pressure on the clutch pedal causes the clutch mechanism to operate in the conventional manner.

The use of Bendix hydraulic controls on rear engine vehicles is said to eliminate complicated mechanical systems with a tendency to rattle, get out of adjustment, require periodic greasing, lock or freeze up in winter and to require less physical effort on the part of the driver.

Color Schemes Chosen For Frazer Cars

Five body colors, and six combinations of upholstery colors, have been chosen for the 1947 Frazer automobiles during the first several months of production, W. A. MacDonald, vice-president in charge of sales for Graham-Paige Motors Corp. and Kaiser-Frazer Corp., announced.

The color schemes were conceived by Carl Spener, color specialist. Later, two additional colors, each with three upholstery color combinations, will be added.

The first five colors will be Speedwing Gray, with blue and beige and maroon and beige upholstery; Airway Blue, with blue and beige upholstery; Turf Green with green and beige upholstery; Crystal Green, with green and beige upholstery, and Buckeye Maroon, with maroon and beige upholstery.

The instruments panels and moldings in the cars will harmonize with the body and upholstery colors. A synthetic baked enamel has been chosen for the Frazer line, MacDonald said, and the first several thousand cars will be in solid colors.

All of the body finishing will be done in the Graham-Paige and Kaiser-Frazer Corporation plant at Willow Run, where mammoth paint spray booths and drying ovens have already been installed.

Central Mike Says:
"EVERY MECHANIC NEEDS
THESE 2 SETS!"

CENTRAL
Certified Accuracy
MICROMETERS

SET NO. 808
Inside Micrometers
Range 1½ to 8 inches.
\$12.00
Complete with Extension Handle and DeLuxe Plush-Lined Case

SET NO. 745 RL
Outside Micrometers
Range 0 to 4 inches.
\$46.50
Complete with Ratchet Stops, Lock Nuts, Standard Test Gauges and Deluxe Hinged Plush-Lined Case

WRITE TODAY FOR CATALOG NO. 17
The entire line of individual micrometers and complete sets illustrated and fully described.

THE CENTRAL TOOL CO.
AUBURN, RHODE ISLAND

CENTRAL
FOR MORE THAN A QUARTER CENTURY SPECIALISTS IN FINE MICROMETERS
CERTIFIED ACCURACY



The Greatest Development in the History of Engine Protection

For years, research at Purolator was aimed toward one end . . . to develop the finest possible oil filter for an automobile. Just before Pearl Harbor we did it . . . created the perfect oil filter that effectively trapped every foreign substance in a car's oil right down to the size of a micron (.000039 of an inch).

Of course, the Armed Forces took all our production during the war, but now the Purolator Micronic Oil Filter is available for civilian cars—and since its introduction has literally swept the country.

Car owners everywhere are installing this new super engine protection on their cars . . . as the best possible insurance against their present car breaking down before the arrival of the new models.

Suggest Purolator Micronic Oil Filters to your customers . . . every car owner is a live prospect for this amazing filter that saves engine wear, and traps *all* the abrasives in a car's oil.

Purolator Products, Inc., Newark 2, N. J. In Canada: Purolator Products (Canada) Ltd., Windsor, Ontario.

KEEP OIL FREE FROM ABRASIVES WITH PUROLATOR

Former Auto Maker Retires from SKF

Retirement of C. R. Mabley, one of the nation's early automotive manufacturers, from the sales staff of SKF Industries, Inc., after 31 years of service, has been announced by R. H. DeMott, vice president in charge of sales.

The retirement is effective June 1.

Mabley joined the ball and roller bearing manufacturing company in 1915 when headquarters were located in New York and for a number of years was manager of the Detroit dis-

trict office. Since 1941 he has been priorities manager in the home office in Philadelphia.

Now 67, Mabley, a native of Detroit, and a partner, Proctor Smith, converted their automobile repair shop in New York City into the successful manufacture of "Simplex" motorcars, but lost their business in the panic of 1908.

Earlier, the two men invested their savings of \$4,000 to establish the first firm to import foreign-made automobiles. Their customers who bought Panhards, Mercedes, Renaults, Isotta-Franchinis and Peugots included the

Vanderbilts, Whitneys, Stotesburys and other noted families.

Mabley and Smith were the first to mount an engine vertically in a frame and to adopt the chassis, a foreign development to American-made cars. They also were the first to use the principle of interchangeable tires.

Mabley also introduced the automobile-type vertical engine to small boats. Known as "Autoboats," they were the forerunner of today's motorboats. He also was organizer and first president of the "Automobile Salon," a display of foreign cars along the lines of today's automobile shows.

New Cleaning Unit

A new self-contained cleaning unit for carburetors, fuel pumps, hydraulic brake, and similar parts is announced by Practical Products Co., 2632 Nicollet Avenue, Minneapolis, Minn. The "Carb-u-tator" is actuated by metered air, all equipment for which is included with the new unit including ten feet of hose for connection to the air supply.

For use with the new machine, "Carbusol," a new cleaning compound has been developed. It will remove carbon, paint, analine dyes, varnish, etc., without injuring metals placed in it. The "Carb-u-tator" unit may be readily attached to all companion models of parts-cleaning units, or can be used on a bench. Parts baskets and supplemental screw baskets complete the unit as delivered.

Stencil Fountain Brush

A new model fountain brush for marking stencils, has been patented by the Marsh Stencil Machine Co., Belleville, Ill. The touch of a button in the handle controls ink flow so that 500 address stencils may be marked, it is said, before refilling is necessary. The new brush is made of aluminum and weighs only 6 1/4 oz. Special washers make the brush leakproof. Brush tips come in three sizes for varying stenciling conditions, and are easily interchanged. A ribbed design on the handle gives a non-slip grip, and hexagon construction of the tip holder prevents the brush from rolling when laid down.

Showroom Furniture Catalog Announced

A complete line of metal tubular furniture especially suitable for automobile showrooms, is illustrated and described in the new catalog of the Doeher Metal Furniture Co., Inc., Plainfield, Connecticut.

The 23-page catalog pictures chrome-plated furniture and equipment, aluminum furniture, baked-enamel furniture, booth equipment, floor lamps, costumers, table lamps, and smokers. Prospective purchasers may obtain a copy of the catalog by writing to the manufacturer.

LION AUTO PARTS

LINE UP WITH LION

LION AUTO PARTS & MFG. CO.
1920 SO. MICHIGAN AVE. CHICAGO 16, ILL.

Fast, Positive Action Counts in
Making Vulcanized Repairs!

SPEAKER

Match Patch Vulcanizer

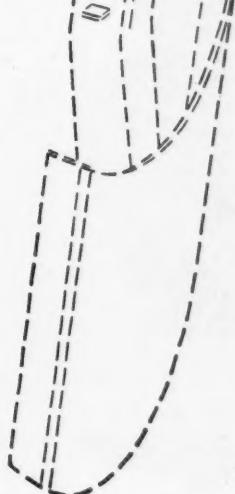
Provides Accurate, Predetermined Pressure

For Any Patch . . . For Any Tube Repair

Large Round Patches • Large Oval Patches • Small Round Patches • Small Oblong Patches • Replacement Valves



**SPEAKER TIRE REPAIRS
SPEAK WELL FOR YOU!**



NO guesswork! One downward pull on the lever sets AND LOCKS the pressure pan for an unexcelled feather-edge MATCH PATCH repair of any puncture. Time-saving, dependable, it's like an extra man in your shop.

The SPEAKER MATCH PATCH VULCANIZER doesn't depend on the operator's strength or judgment for correct pressure. No screw to turn, no guessing as to the amount of force needed. Pressure is predetermined by compensating wings and toggle action.

This all steel vulcanizer is sold with a complete assortment of MATCH PATCHES and valves for 65 top-quality tube repair jobs of every type. See your jobber, or write today.

J. W. SPEAKER CORP.
MILWAUKEE 12, WISCONSIN

Chevrolet's West Coast Warehouse Nears Finish

Chevrolet's new service parts warehouse, located on Van Nuys Boulevard, in Van Nuys, California, is nearing completion and is already being used, it was announced by A. Culbertson, Chevrolet's zone manager.

While work remains to be done on some portions of the building, it was felt that service parts could be handled. Arrangements were accordingly made to move stock in, and during the last month a steadily increasing volume of replacement parts has been

received and, in turn, shipped to Chevrolet dealers.

Under the plan of operation Culbertson explained the new warehouse replaces an old one which had operated as a zone warehouse. This means that it carried a stock of some 15,000 parts, ranging in size from ball bearings to body parts. As soon as completed, however, the new warehouse will carry more than 25,000 parts, ranging in size all the way up to car frames. This will change its status to a master warehouse, meaning that it is one of the group of completely-stocked warehouses scattered through-

out the country for added service.

The change in status of the new warehouse, Culbertson continues, was due to the fact that the importance of the Los Angeles area is constantly increasing. Chevrolet's policy is to grow along with the community, not only in sales but in service. This operation will therefore serve only the Los Angeles area, whereas other master warehouses serve a much larger territory. As high as a million pounds of parts have been shipped from here in a month, he stated.

LONG LIFE

The cost of installing bearings is always greater than the price of the bearings. Consequently, it is false economy to purchase, sell or install bearings on a price basis alone. It is much more important to consider quality first. Check the manufacturer's reputation, experience, and know-how. After all, it's the long hours of dependable operation that determines real worth.

No matter how you compare Johnson Bronze Bearings you will find them tops in every respect. For more than forty years we have remained a preferred source of supply for leading car and truck builders. There are no second or third grades of Johnson Bronze Bearings. Every item in the line is made to the same precise standards of workmanship and material demanded in new equipment.

The next time you need bearings Specify JOHNSON BRONZE. Write for complete catalogue today.

JOHNSON
SLEEVE BEARING
455 S. MILL STREET

BRONZE
HEADQUARTERS
NEW CASTLE, PA.



Election Announced

G. W. Stephens was elected to his 24th year as president and general manager of the Mansfield Tire & Rubber Co. and J. S. Wainright, general sales manager for 25 years, was elevated to the position of vice-president in charge of sales,

when directors of the company met for their annual meeting held recently.

Stephens reported to the directors that a large portion of the company's \$3,000,000 expansion program has been completed.

Principal projects in the expansion include a new five-story building, an extension of the present power facilities which will more than double the previous steam production capacity, and the installation of additional machinery to increase the over-all production rate.



"Would you say 'Great White Father'
—or 'Dear Mr. Truman'?"

THE
WEATHERHEAD
"LINE":



Fittings



Fuel Lines



Dash Controls



Drain Cocks

The
WEATHERHEAD
COMPANY
Cleveland, Ohio



"If I can have your attention Mr. Jones,
I'll show you the WEATHERHEAD LINE"

Buick Announces Huge Expansion Program

Buick swings into the automotive industry's Golden Jubilee celebration with the greatest expansion and modernization program in its 43-year history.

Goal of the new program, according to Harlow H. Curtice, Buick general manager and vice president of General Motors, is to provide plant facilities for production of upwards of 550,000 Buick passenger cars annually. The expansion program which

is designed to boost production nearly 50 per cent over the 378,000 automobiles produced during the 1941 model year, peak pre-war volume year.

The program, already underway in Flint, comprises 15 new buildings, including a large modern sheet metal plant, a new car assembly building, and expanded foundry facilities. The new plants will have 1,325,000 square feet of floor space.

In addition Buick has leased the government-owned tank arsenal at Grand Blanc, Mich., as a huge parts warehouse and shipping department,

and purchased the aluminum aircraft parts foundry built on its property during the war for expanded manufacturing operations. These buildings will provide an additional 1,000,000 square feet of floor space.

Curtice estimated that the Buick Division would have to maintain peak production for many months to dent a large backlog of orders.

The project has required the razing of original Buick properties—Flint landmarks, including the final assembly plant built in 1906 shortly after James H. Whiting induced his associates in the Flint Wagon Co. to purchase the Buick Motor Co. from the Briscoe Brothers Detroit sheet metal manufacturers.

CAMELS in the Spotlight

CAMEL is the popular line of tube repair products used the world over to repair dependably all synthetic and natural rubber tubes. Correctly compounded of the finest ingredients, laboratory controlled in every manufacturing step, packaged and guaranteed to stay fresh and usable, the entire CAMEL line carries the same quickly identified label. CAMELS are in the spotlight . . . everywhere.

The new hermetically factory-sealed package for vulcanizing patches is absolutely water repellent. This insures a perfect patch and heat element when used. The CAMEL line is designed, perfected and sold by H. B. Egan Manufacturing Co., Muskogee, Oklahoma.



Other CAMEL Products available in the complete line are: Quick Cure Gum, Tube Repair Kits, Garage-size Kits, Vulcanizing Cement, Rubber Cement, Tire Patch Cement, Vulcanizing Kits, and Valve Stem Heat Units.

Kaiser Engine Has Increased Horsepower

Originally designed as an 85-horsepower plant, the six-cylinder engine which will power the 1947 Kaiser automobile has been developed to turn up 92 horsepower at 4000 revolutions per minute, H. C. McCaslin, vice-president in charge of engineering at Kaiser-Frazer Corp., announced.

The new engine was designed to be compact and light weight and was specially engineered for the front-wheel drive Kaiser. In addition to these qualities, the engine delivers power equal to that of many heavier six-cylinder passenger car motors, McCaslin stated.

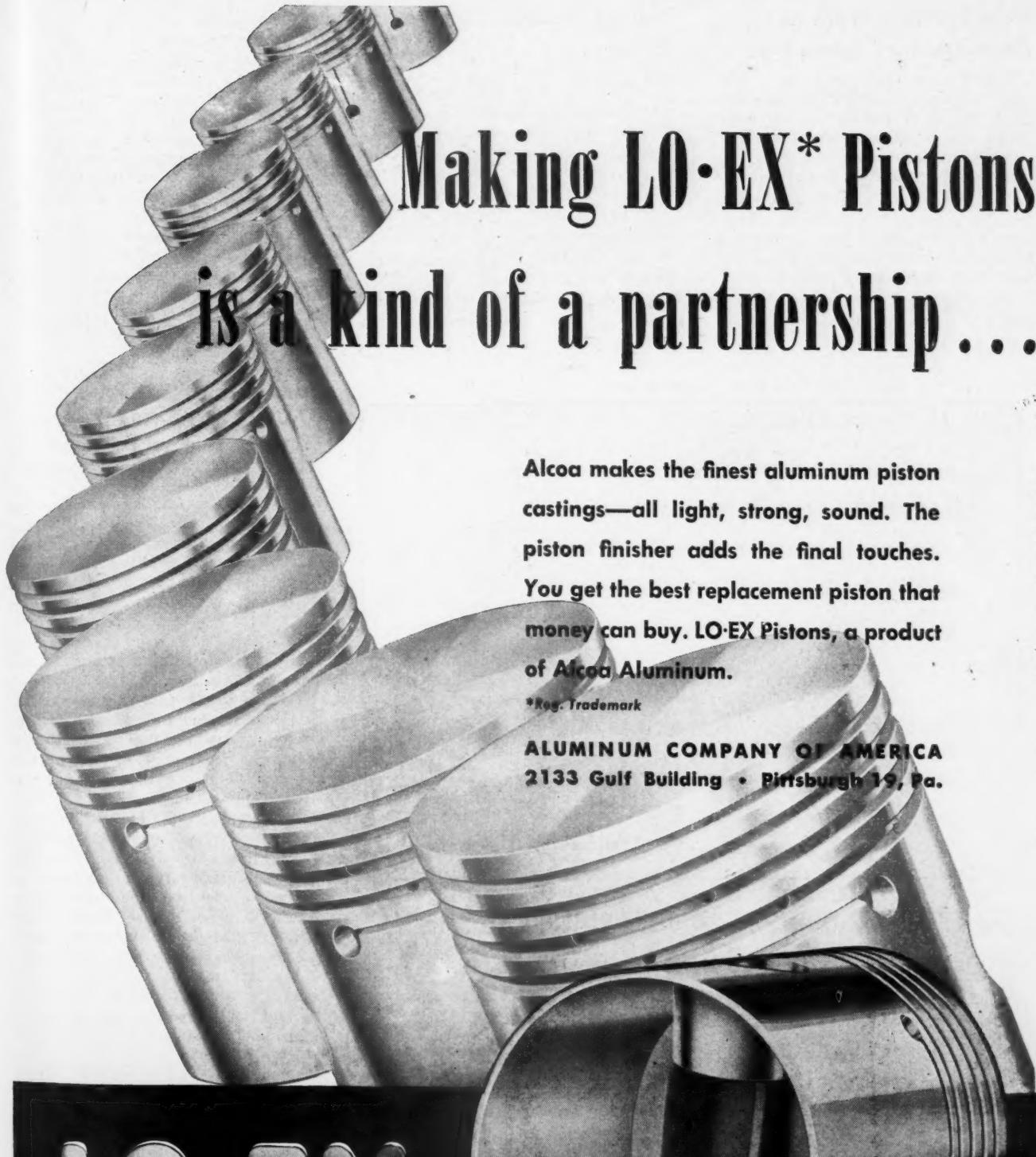
Increasing the engine's capacity from 85 to 92 horsepower was accomplished by Kaiser and Frazer and Continental Motors engineers through high-speed timing adjustments, changes in the cams and by making the valves larger in proportion to cylinder diameter, he explained.

Pence Named Regional Manager for Willys

M. R. Pence who, since 1945, has been regional manager for North and South Carolina, Georgia and Florida, with headquarters in Atlanta, for Willys-Overland Motors, has been appointed assistant sales manager in charge of the eastern half of the United States it was announced by Geo. Harold Bell, general sales manager.

Pence has been in the automotive field since 1921 when he was employed as sales representative, assistant sales manager and general sales manager respectively, for the Clydesdale Motor Truck Co. He first joined Willys-Overland in 1927 when he was placed in charge of fleet sales.

During World War II he served as an ordnance officer with the Fourth Service Command, U. S. Army. He rejoined Willys-Overland in 1945 to serve as regional manager.



Making LO-EX* Pistons is a kind of a partnership . . .

Alcoa makes the finest aluminum piston castings—all light, strong, sound. The piston finisher adds the final touches. You get the best replacement piston that money can buy. LO-EX Pistons, a product of Alcoa Aluminum.

*Reg. Trademark

ALUMINUM COMPANY OF AMERICA
2133 Gulf Building • Pittsburgh 19, Pa.

LO-EX
REGISTERED TRADEMARK
PISTONS OF
ALCOA

The inset advertisement features the LO-EX logo at the top, followed by "REGISTERED TRADEMARK". Below that, it says "PISTONS OF" and "ALCOA". The background of the ad is dark, making the white text stand out. In the bottom right corner of the inset, there is a circular logo for "ALCOA" with the words "ALUMINUM" and "OIL" also present.

New Ignition Method Developed by Germans

A method for igniting internal combustion engines without using spark plugs was developed by German engineers, according to a report released today by the Office of the Publication Board, Department of Commerce.

The report, made by R. J. Bender, for the Combined Intelligence Objectives Sub-Committee, may be ordered from OPB (PB-6679; photostat, \$1; microfilm, 50 cents; 15 pages).

The method, known as the "ring-process," was designed chiefly to

eliminate spark plug fouling and ignition difficulties in aircraft engines at high altitudes. Ignition is effected by spraying a liquid ether, such as budadiol diethyl ether or diethyl glycol ether, into the combustion chamber at the time of the compression stroke. The liquid ignites at the temperature of the cylinder and thus sets off the combustible charge.

"Ring process" operates over the entire range of air-fuel mixtures and reduces knocking. However, tests revealed that an auxiliary set of spark plugs was necessary for starting engines at low temperatures. The

"Ring-process" was also much more expensive to install than spark ignition. In the investigator's opinion, a final evaluation of the process can be made only in relation to other new developments in aircraft and diesel engines, jet propulsion, and turbines.

The composition and properties of the liquid used and pertinent features of the "Ring-process" are described in the report.

Orders for the report should be addressed to the Office of the Publication Board, Department of Commerce, Washington 25, D. C., and should be accompanied by check or money order, payable to the Treasurer of the United States.

Ford Dealer Sells 87,000 Cars in 43 Years

Probably the oldest automobile dealer in the Ford Motor Company's organization is William L. Hughson, San Francisco, who has been selling Fords for the last 43 years. Checking over his books as the Golden Jubilee of the auto industry approaches, Hughson reported he has sold 87,000 Fords during the time he has been in business.

Hughson's sales room is now located on San Francisco's automobile row—Van Ness Avenue.

Telling of his early experiences, Hughson related how he traveled to Detroit in January 1903 and signed a dealership contract with Henry Ford, six months before the present Ford Motor Co. was incorporated.

"I had a check for \$5,000, and I got six automobiles from Mr. Ford," Hughson explained. Back in San Francisco, Hughson put on a show for the people who lined the steep hills to see the cars perform. "Even so," he related, "The people were still leery. They wouldn't buy." He finally rented his cars and started what he now claims to be the first taxi service in the country. It wasn't long, however, before a skeptical public changed, and the cars began to sell.

During the San Francisco earthquake and fire Hughson's place of business was destroyed. "I saved my stock of automobiles," he related. "We used them to haul dynamite to blast fire lanes until the fire finally was under control."

Classified Advertisement

SALESMEN TOP-NOTCH MEN, WANTED BY NATIONALLY-KNOWN MANUFACTURER OF QUALITY SUNGLASSES. MUST HAVE SOLID CONNECTIONS WITH AUTOMOTIVE CHAINS, WHOLESALERS, LARGE RETAILERS. MEN APPOINTED WILL BE CONFINED TO THEIR LOCAL TERRITORY. WRITE FULLY, TERRITORY TRAVELED, YEARS IN BUSINESS, REFERENCES CONFIDENTIAL. APPOINTMENT ARRANGED, IF QUALIFIED. WRITE BOX 30, MOTOR AGE, 5601 CHESTNUT STREET, PHILADELPHIA 39, PA.



SOL-SPEEDI-DRI WORKS . . . WHILE YOU WORK IN SAFETY!

No costly machinery . . . no trained cleaning personnel . . . is required to use SOL-SPEEDI-DRI. Just spread it around. That's all! Effective? It's doubly effective! SOL-SPEEDI-DRI lays a fall-proof, magic carpet of safety underfoot. Then, after it's done its work, sweep it up . . . and your floors are left clean and safe.

Yes, SOL-SPEEDI-DRI is just what the doctor ordered for slick, sick floors. If the floors of your garage, bus- or truck-terminal, or shop are ice-slick with oil- and grease-deposits . . . the answer is SOL-SPEEDI-DRI, the automatic way to shop-safety!

SUPPLIERS:

East—Safety & Maintenance Co., Inc., New York 1, N. Y.

South, Midwest & West Coast—Waverly Petroleum Products Co., Philadelphia 6, Pa.

Pin your card to this advertisement and mail today for full details and a free, generous sample of SOL-SPEEDI-DRI.



SOL-SPEEDI-DRI
OIL AND GREASE ABSORBENT

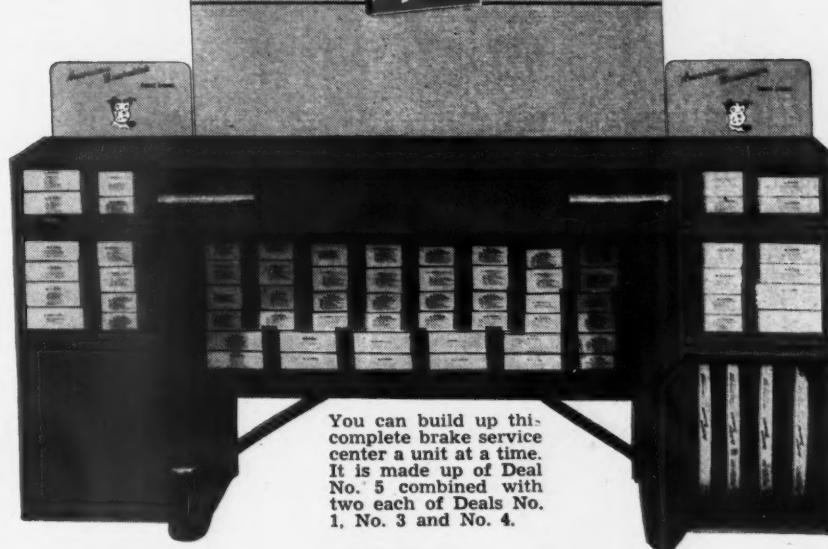


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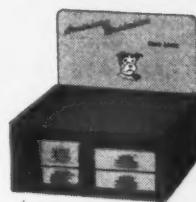
*Build yourself a
better brake department*

SPECIAL ASSORTMENT LINE-UP

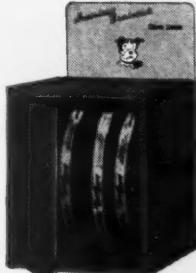
BRAKE DEP'T.



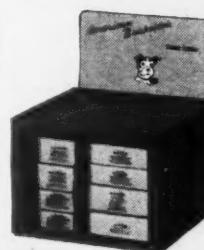
You can build up this complete brake service center a unit at a time. It is made up of Deal No. 5 combined with two each of Deals No. 1, No. 3 and No. 4.



DEAL No. 1—General purpose assortment of nine car sets and small size cabinet. Services 11 makes of cars.



DEAL No. 2—Nine set assortment for use on Ford, Chevrolet and Plymouth with small size cabinet.



DEAL No. 3—Eighteen set assortment for 11 makes of cars. Covers wider range of models than Deal No. 1. Medium size cabinet included.



DEAL No. 4—Popular roll assortment. Consists of the four most "in demand" roll linings (standard friction material). Covers requirements of a majority of passenger cars and light trucks. Deal includes large cabinet with door.

DEAL No. 5—Work bench and 45 car sets. Services 13 makes of vehicles—hundreds of models.

You may order any combination of deals—or any number of the same deal. Cabinets and bench combine to make many different displays—and a unified brake service center for your shop.

Master stocks at 38 NAPA warehouses — strategically located to efficiently serve thousands of jobbers.



*American
Brakebloc*
TRADE MARK REG. U. S. PAT. OFF.

Brake Lining

**AMERICAN
Brake Shoe
COMPANY**

AMERICAN BRAKEBLOC DIVISION
4600 Merritt Avenue
Detroit 9, Michigan

AS ADVERTISED IN
TIME
MAGAZINE



To control its quality, Valvoline is refined in limited quantity from pure Pennsylvania crude oil. Every quart costs us more to make—costs you less to use. Naturally, Valvoline is not on sale everywhere, but you will find it at better dealers coast-to-coast. Sold with this guarantee: Valvoline's performance must completely satisfy you—or your money back!



VALVOLINE

The Original Pennsylvania Motor Oil

Freedom-Valvoline Oil Co., Dept. 12F, Freedom, Pa.
Cincinnati, New York, Washington, Toronto, Pittsburgh, Atlanta, Detroit,
Chicago, Los Angeles, Vancouver, B. C. Refineries at Butler and Freedom, Pa.

Chevrolet Announces Master Distribution Plan

Chevrolet Motor Division recently announced a master plan for distribution of new cars to Chevrolet dealers throughout the nation. This plan apportions production to dealers in direct ratio to the individual dealers' sales in 1941, the last year of pre-war production.

"As part of the over-all distribution program, it is necessary to consider the export requirements as well as the domestic needs of the country," it was stated by T. H. Keating, general sales manager. Chevrolet, therefore, in addition to its carefully developed distribution program "to insure an even flow of cars to all dealers in all sections of the country, is scheduling a portion of its production for export under allowable quotas as established by the Civilian Production Administration. These quotas are based on the average export volume for the years 1936 through 1940. Shipments are restricted to quantities within these quotas.

Since the Civilian Production Administration has recognized the importance of maintaining the United States' position in the export markets, Chevrolet is cooperating in this program.

Foreign nations, notably England, France and Russia, are again in production on automobiles and are exporting substantial quantities of their production in order to establish their products in the markets of other countries.

American cars and trucks have set a standard in quality and performance which has created a demand for their use in all parts of the world.

While it is not possible to fulfill the export demand to any greater degree than the domestic need, it is considered important by the government that foreign trade be protected to the extent that American products in quantities, as determined by present manufacturing conditions, can equitably be made available in foreign markets.

The United States government has its own requirements of cars and trucks in foreign countries, which are taken care of out of these export shipments.

New Auto Paint

A paint job on any automobile in one hour, without the use of brushes or spray guns, is announced by the Automotive Division of Motel Supplies, 2160 Sunset Blvd., Los Angeles, Calif.

The manufacturer announced that their product "DAB" would immediately be placed on the market for consumer consumption in the 4 standard colors, packed in quarts, each quart sufficient for one complete paint job and sold under an unconditional two year guarantee.



some shout

"MURDER"



some whisper

"Love"



Capper's Farmer

says "BUY"



Yes, the influence of Capper's Farmer on its 1,275,000 farm family readers is so strong and fundamental that it affects their every purchase. The reliance these dominant farm families place in the farm-proved information, practical advice, and profitable suggestions of Capper's Farmer is reflected in their response to its advertising pages.

When the products you sell are advertised in Capper's Farmer, you can count on doing more business with Mid-America's high income farm families.

The Farm Magazine That
Dominant Farm Families Heed

CAPPER'S FARMER readers
are tops with
This Automobile Dealer

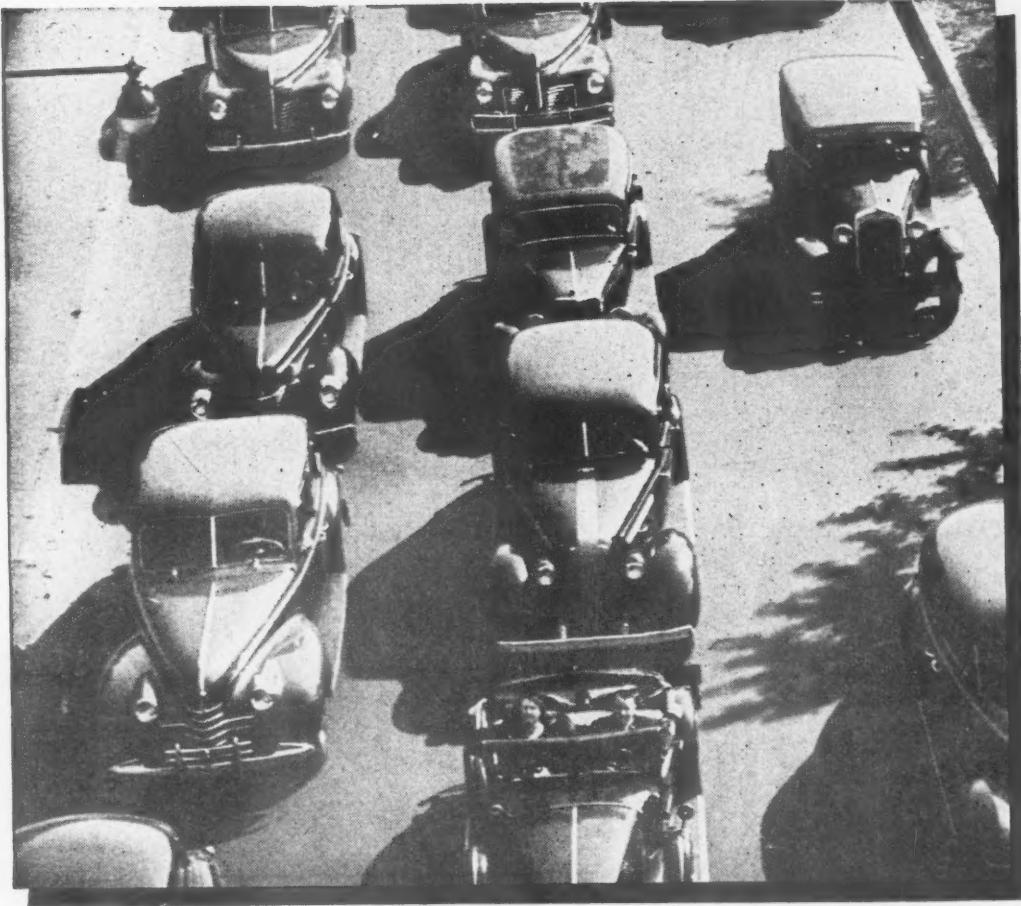


The testimonials of numerous automobile dealers all over Mid-America confirm the opinion of R. M. Meyers, prosperous automobile dealer of Marysville, Marshall County, Kansas. After inspecting the Capper's Farmer subscriber list for his area, Mr. Meyers said—

• • •
"These Capper's Farmer subscribers are the farm families I would consider ideal automobile prospects. They own the choice farms of this region and are producing the top farm incomes."

Capper's Farmer

Your best customers know and



WATCH FOR OUR
ADS IN THE
SATURDAY EVENING
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People *pay attention*

prefer Post-advertised lines



When a manufacturer asks you to "watch for our ads in the Post," he's calling your attention to the best kind of local support.



For advertisements in the Post reach your best customers—the leaders, who are first to buy the new and better things.



And advertisements in the Post get attention. For people like to read ads in the Post—far more than in any other magazine.



when they see it in the POST

Add HUNDREDS of DOLLARS to Your USED CAR VALUES!

DIRTY UPHOLSTERY

On Used Cars

- Reduces Value
- Retards Sales
- Loses Money

CLEAN UP
with

FABRITE

CAR
UPHOLSTERY CLEANER

A few cents worth of "FABRITE" and less than \$1.00 in labor cost per car will add hundreds of dollars to your annual used car values.

CONVENIENT • ECONOMICAL

DEALER COST

25c Box—cleans 1 car..	\$1.00 doz.
\$1.00 Can—cleans 8 cars	.65 ea.
7½ lb. Can—cleans	
40 cars.....	2.50 ea.
36 lb. Drum—cleans	
192 cars.....	10.00 ea.

Delivered to You

Hundreds of leading car dealers wash the upholstery on every used car with "FABRITE". You, too, will find it profitable!

LET FABRITE CONVINCE YOU!

We knew "FABRITE" is good and want you to try it. Ask us to send you 1 unit (any size). It will be delivered, pre-paid, on open account. If you are not satisfied with results it will cost you nothing.

LAKESIDE PRODUCTS

712 S. FEDERAL ST., CHICAGO 5, ILL.
MAKERS OF "HURRICANE AUTO SHAMPOO"

New Wagner Brake Parts Catalog Now Available

The new Wagner pocket size Catalog HU-122 on fast-moving hydraulic brake parts is now available. The new catalog contains correct and up-to-date specifications on practically all passenger cars and commercial vehicles, covering 85 to 90% of the average shop's needs. Contents of the catalog include: Cars and trucks by years and models—listing of hose assemblies, master cylinders, wheel cylinders, and cylinder repair kits. List prices of hydraulic brake parts—numerically arranged. Repair kits—list of contents. Stoplite switches by catalog number and car application. Brake fluid. Cross-section drawings of various master cylinders and wheel cylinders, with all parts identified with proper names. Tools and equipment available for servicing hydraulic brakes. Trade helps available to repair shops.

A free copy of catalog HU-122 is available from the Wagner Electric Corporation, 6496 Plymouth Avenue, St. Louis 14, Mo.

New Auto Radio Antennas Announced

Two new automobile radio antennas, the "Cosmopolitan" and the "Hemisphere," are being offered by the Snyder Manufacturing Co., Philadelphia, Pa.

The "Cosmopolitan" is designed for fender or top cowl with concealed installation. It is made in four sections with a closed height of eight inches. It is self-aligning with a 33 degree angle adjustment for all body and fender contours.

The "Hemisphere" is a deluxe swing angle antenna, adaptable to all cowl or fender contours. It is made in four sections, extends to 66 inches and closes down to 22 inches. The new model features a stainless steel-capped bakelite all-way insulator.

Draincock Wrench

A new type of wrench that does away with the annoyance of trying to open draincocks with pliers, has just been announced by Associated Producers, Inc., 1029 Fisher Bldg., Detroit 2, Mich.

By applying even pressure to both ends of the draincock, it prevents breakage; by taking a firm grip, it cannot slip off, putting an end to skinned knuckles.

The "Drainmaster" drain-cock wrench has two different-sized ends and fits practically all drain-cocks of radiators, engine blocks, heaters, etc. Each end is shaped like a cup or baffle-plate which shoots the water out the sides, keeping it from spouting straight out or running down the mechanic's sleeves.



Fig. 2222

THIS....

Foreman's desk of welded Steel with two enclosed sections, middle section open for easy access to less valuable records and gadgets. A most complete piece of equipment for doing any kind of desk-work such as filing orders, keeping your records, etc.



Fig. 2207

AND THIS....

Enclosed tool stand of welded steel equipped with three adjustable shelves. Keep your tools safely behind the locked door of this sturdy tool stand.

BY HALLOWELL

**SAVE YOU MONEY
MAKE YOUR WORK
A LOT EASIER!**

Write today for the free "Hallowell" Shop Equipment Catalog for information about other styles of shop furniture. "Unbrako" and "Hallowell" products are sold entirely through distributors.



**STANDARD
PRESSED STEEL CO.**

JENKINTOWN, PA.

BOX 561

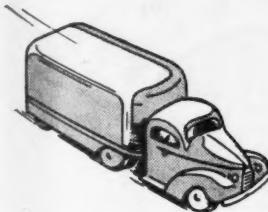
Boston, Chicago, Detroit
Indianapolis, St. Louis, San Francisco



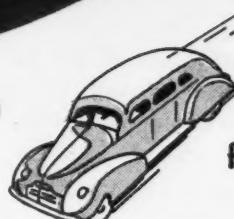
★ FILTERING UNIT

of specially prepared porcelain keeps harmful matter out of carburetor. Retail price

\$2¹⁰



Here's the biggest bargain in
annoyance of unnecessary
carburetor.



protection against the
foreign matter in the

Install a CARTER CERAMIC Filter every time you install, rebuild, or repair a carburetor.

It's a simple and sure way to build good-will—and profits.

CARBURETER

TRADE MARK REG. U. S. PAT. OFF.
MARA. REGISTRADA



CARTER CARBURETOR CORPORATION • ST. LOUIS 7
Division of American Car & Foundry Company **MISSOURI**

GET THIS CRACK SALESMAN

FREE

**THE AC OIL
TEST PAD**



FAST—because you use it for wiping the dipstick. **ACCURATE**—because it absorbs the oil but not the dirt. **PROFITABLE**—because it shows the customer exactly why he needs an oil filter or element. **BEST** of all quick tests because it's honest.

Everybody needs an oil filter. AC has Replacement Elements for practically all makes of oil filters—better elements for cars, trucks and tractors.

Your market is wide. And with the FREE Oil Test Pads you can show the customer the dirt and grit—and explain how dirty oil clogs rings, gums valves—wastes power and fuel—wears working parts.

So test oil every time you check it. AC Oil Test Pads will make many sales for you. You get them FREE when you become an Official AC Oil Filter Service Station. Your AC jobber will be glad to register you.

SEND FOR AC SHOP MANUALS

Field Service Dept., AC Spark Plug Division, G. M. Corp.
910 Mott Foundation Building, Flint 3, Michigan
Gentlemen: Please send at once, no charge, the AC Shop
Manuals checked:

<input type="checkbox"/> How To Service Spark Plugs	<input type="checkbox"/> How to Service Fuel Pumps
<input type="checkbox"/> How to Service Spark Plug Cleaner	<input type="checkbox"/> How to Service Air Cleaners
<input type="checkbox"/> HOW TO SERVICE OIL FILTERS	<input type="checkbox"/> How to Service Speedometers
<input type="checkbox"/> How to Service Ammeters and other Instruments	

MA-6

NAME _____

FIRM _____

STREET ADDRESS _____

CITY _____

STATE _____



OIL FILTERS

New Type Fitting Aids Hand Grease Gun Refill

The old messy problem of loading hand grease guns is done away with in the latest hand guns announced by the Alemite Division, Stewart Warner Corp., Chicago, Ill. A "gun-loader fitting," is provided on the new guns through which grease may be pumped into the reservoir of the gun from a bucket pump or loader pump equipped with a loader valve. Disassembly of the hand gun, lube waste and contamination, and air pockets in the gun are eliminated. Present Alemite guns may be easily converted by a loader valve, No. G-306740, now available. The valve can be installed in either lever-type or push-type guns simply by drilling and tapping a $\frac{1}{8}$ in. pipe thread. Any bucket pump may be converted into a loader with loader kit No. G-306910 also available. The kit includes one loader fitting for a hand gun and a bracket to hold the gun on the side of the bucket.

Further information on new hand guns now available, including a portable combination loader and bucket pump Model 6536-G of especial interest to the farm field, may be obtained from the manufacturer.

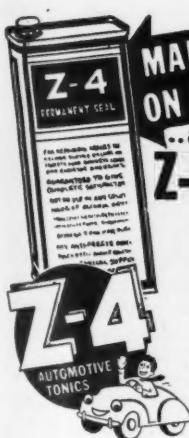
New Raybestos Package

The Raybestos Division of Raybestos-Manhattan, Inc., has introduced a new PG Box used to package all brake lining sets manufactured by it at its Bridgeport, Connecticut, factory.

The package features another Raybestos first. A "window" is cut in at one of the ends behind which a printed card is inserted with:

1. The PG Set number printed in large type.
2. The BLMA numbers covered by the Raybestos PG Set.
3. Rivet sizes applicable.
4. The specifications of the vehicles which the PG Set fits.

The new PG Box is made of fiber board with a durable gloss finish to withstand shipping problems and arrive at dealers and jobbers with the same appearance as when first packed at the factory.



**MAKE A PEACH OF A PROFIT
ON COOLING SYSTEM REPAIRS!**
**...and please more customers with
Z-4 PERMANENT SEAL**

Save time . . . eliminate hard work. Let Z-4 Permanent Seal permanently repair those seams and cracks in heads, blocks and radiators.

ONE INEXPENSIVE OPERATION
Pour Z-4 Permanent seal in the radiator . . . your job is finished and block, head and radiator are ready to go. Ask your jobber, today!

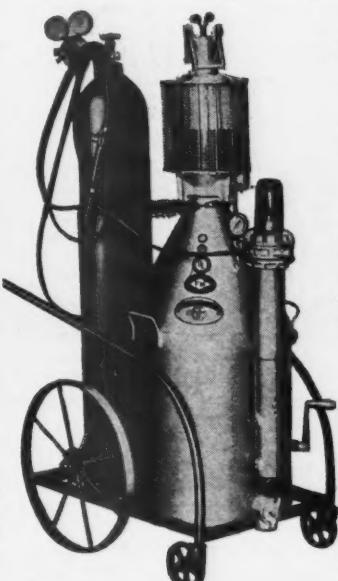
U. S. CHEMICAL & SUPPLY COMPANY
1424 McGee St.
Kansas City 6, Mo.

"WILL I HAVE ENOUGH ACETYLENE FOR TOMORROW'S JOBS?"

You will—if you have
a Sight Feed Generator



- You won't run out of acetylene if you have a Sight Feed Acetylene Generator. A glance at the hopper will tell you instantly how much acetylene you have available.



ACETYLENE GENERATORS • FLOODLIGHTS • FLARELIGHTS



THE SIGHT FEED GENERATOR COMPANY
RICHMOND, INDIANA



**CONTACT POINT
DRESSER**

Cuts and smooths hardest metals including tungsten and platinum-iridium points.

RINCK-McILWAINE, Inc., 16 Hudson St., New York 13, N. Y.

IT'S A FLEXIBLE STONE!

THE abrasive that gets action in confined spaces. Works around corners. Can be bent and twisted at sharp angles without breaking. Most efficient dresser for all electrical contacts, commutators, etc. Very thin—won't cause widening of spark plug gap. No short circuit. Size $4\frac{1}{4}$ " $\times \frac{3}{8}$ ". List 15c each. Ask your jobber.

**For a Better and Easier
Brake Service Job . . .**



EIS HYDRAULIC BRAKE TOOLS

EVERY shop that renders brake service needs these efficient time-and-labor-saving tools. Built to the high quality standards that have made the EIS Line "The Line of Dependable Service."

1—WHEEL CYLINDER CLAMP. Saves time and temper by preventing pistons from leaving cylinder when shoes are removed, while repairing hydraulic brakes.

2—HYDRAULIC BRAKE CYLINDER HONE. Two sets of stones, coarse and fine, for grinding and polishing. Three sizes, for bores from $\frac{3}{4}$ " to 2".

3—HYDRAULIC BRAKE PRESSURE BLEEDER. Enables one man to do the work of two. Heavy steel, very durable. In several capacities to meet every requirement.

4—BURRING TOOL. Lengthens the life of the main cup in the master cylinder by removing the sharp edges of the by-pass port after honing.

From your jobber. Write us for literature.

The EIS AUTOMOTIVE Corp.
MIDDLETOWN, CONN.

THE LINE OF
DEPENDABLE
SERVICE

Service Jobs Demand Precision

Service and maintenance work requires the same exacting precision as in the factory where the original parts were made. Makeshift equipment finds no place in machining such parts as pistons, bearings, bushings, valves and commutators; in truing-up work and precision checking, in making new parts from old. A versatile South Bend Precision Lathe does all this—and more—with factory accuracy. Bent shafts can be tested and straightened, worn parts built up with welding rod and re-machined, bushings and bearings built from shafts or castings or scrap. In service shops where precision is vital, a South Bend Lathe is essential equipment.

Send For This Catalog
Write for your copy of Catalog 100—showing all sizes and models of South Bend Lathes in 9, 10, 13, 14-1/2, and 16-inch swivel centers with all accessories and attachments.



SOUTH BEND LATHE WORKS

450 E. MADISON ST., SOUTH BEND 22, INDIANA



Be
100%
With
10%
•
Buy
Bonds

Ethy Corp. Sponsoring Safe-Driving Program

In cooperation with the U. S. Government and various groups organized to promote safety, Ethyl Corp. is participating actively in the current national safe-driving program by sponsoring an advertising campaign on good driving, it is announced.

While the public program being sponsored by the National Safety Council, the Automotive Safety Foundation, the International Association of Chiefs of Police and other organizations will emphasize the need of "safe" driving in automotive traffic, Ethyl's part in the campaign will be to stress the importance of "good" driving as a means of both decreasing accidents and increasing the pleasures of automobile driving.

"Good driving" according to Ethyl's announcement, can easily become a "habit" if due attention is paid by motorists to such factors as common courtesy on the road, proper signaling, observance of road warning signs, dimming of bright lights in approaching on-coming cars, and proper parking.

Featuring the Ethyl campaign is a booklet, "Professional Driving," which has been prepared on the basis of interviews with outstanding truck and bus drivers throughout the country. Copies of the booklet will be sent free upon request to anyone.

Ethyl's advertising campaign, which has just started, will be carried in magazines having a total national circulation of more than 15,000,000. The new theme supplants the regular sales copy, which has been shelved temporarily because of government restrictions limiting the normal use of Ethyl fluid by oil companies.

Six Goodyear Officials Return from Foreign Posts

Return of six officials from plants in five foreign countries for reassignment in domestic organizations has been announced by G. K. Hinshaw, production manager foreign operations, Goodyear Tire & Rubber Co.

The men returning are: Alvin J. Slay, purchasing agent, and Melville W. Mears, division superintendent, Australia; John D. Campbell, division superintendent, Sweden; Russell A. Spoonamore, production representative, India; John R. Oakley, manager technical service, Brazil, and R. J. Perrin, mechanical goods superintendent, England.

Slay had been with the Australian organization 20 years and Mears 11 years. Perrin was in England eight years, Campbell in Sweden seven years. Oakley and Spoonamore had been on their assignments four years.

No new assignments have been announced for the men, all of whom are now enjoying home leave.

Are YOU in the "So-and-So BOOK"



MOST folks are mighty tired of being shoved around during these days of shortages. They take it now because they have to, and say nothing. But every customer is keeping a mental list of people who'll get no more business from him when competition returns to normal. Are YOU on that list? You may be if you are not doing a good job of tire repairing.

Bowes "Seal Fast" Tire Repair Equipment Will Help You Keep Out of the "So and So" Book

Nothing makes a customer so mad as a flat tire caused by haphazard tire repairing. You can't

afford to be remembered as the fellow who gave it to him. Bowes "Seal Fast" tire repair equipment and materials *plus* training by factory experts will enable you to give your customers safe, lasting repairs that keep tires rolling to the last good mile. Customers will remember that, too.

Now is the time to make lasting friends who will bring business to you when times get tough. Write today and a Bowes Distributor will call, without obligation, and explain the Bowes profit-making plan for dealers who are looking ahead to bigger and better business tomorrow.



BOWES AUTO POLISH AND CLEANER...

the polish that does the whole job at once...will be featured in national magazines in June. Stock this better polish NOW—put this national advertising to work for YOU!



TIRE SAVING SYSTEM

BOWES "SEAL FAST" CORPORATION, INDIANAPOLIS 7, INDIANA

YOU'RE LOSING MORE MONEY THAN YOU THINK

*It probably hasn't occurred to you that on
2 out of every 3 cars you sell, you're losing money.*

We mean a FINANCE RESERVE PROFIT.

THE FACTS are that dealers used to finance 60% or more of their new car sales. In 1941, before the war, before people had War Bond savings, and when only a few banks financed automobiles, dealer financing dropped to only 38%.

Banks, that year, did a 1½ billion dollar auto finance volume. Based on U. S. Government compiled statistics, it can be shown that this direct business cost metropolitan area dealers AN AVERAGE OF \$5,088.00 EACH IN LOST RESERVES.

Today—people have large savings. Fewer cars will be financed. It is important to dealers that they handle most of these deals.

Fighting you for the business will be 10,000 banks now financing cars—and 75,000 insurance men organized to encourage direct deals.

A recent survey shows that this can cost the average city dealer

\$7,500.00 or more in profits (write for interesting booklet giving complete facts). That's important money.

Here's a new finance package (see box) GFC has created to meet—and beat—bank competition on every point. Check it—compare it—point for point. Then check your own situation. What will it mean to you to lose a total of \$7,500.00 because you fail to finance 2 out of every 3 cars you sell?

* * *

DO THIS NOW—Call, write or wire GFC headquarters in Chicago. Ask to have our nearest office show you how to meet direct competition and to retain that \$7,500.00 in reserve income which direct competition may cost you. Don't delay. Your competition is vigorously aggressive and active. No dealer can afford to be less so.

Why It Pays to Finance With GENERAL Finance

It pays Car Buyers with...

LOW RATES—as low as the lowest.

FLEXIBLE CREDIT—most liberal of any finance plan, anywhere.

COMPLETE INSURANCE for car and credit-life coverage for owner.

A.T.A. MOTOR CLUB SERVICES
REPAIR FINANCING

It pays Dealers with...

PROFIT RESERVES

GENEROUS WHOLESALE
FINANCING

LIBERAL USED CAR FINANCING
including marginal credit risks.

General Finance Corporation

BRANCH OFFICES IN



PRINCIPAL CITIES

184 West Lake Street • Chicago 1

Finest of the Fine



AMERICA'S SERVICE MECHANIC

Wolf's Head salutes America's Mechanics . . . the "finest of the fine." They were the men who kept our transport system rolling. They were the men who, no matter what happened, found the ways, the means, and the time, to make the repairs that kept cars, trucks, buses running all during the war. Our hats are off. Orchids to you from Wolf's Head.

QUALITY PRODUCTS plus QUALITY SERVICE

WOLF'S HEAD MOTOR OIL AND LUBES

Every mechanic and service man knows that an inferior oil or lube can undo even the best repair job. That's why so many of them recommend only the "Top Quality" motor oil . . . Wolf's Head. Wolf's Head Motor Oil is 100% Pennsylvania . . . the "finest of the fine" . . . the choice of fleet operators, the specified oil for critical block tests of aircraft engines, the oil that has the stuff to keep cars running smoothly, quietly . . . with minimum wear . . . year in and year out. Recommend Wolf's Head Oil yourself. It will pay you dividends in profits and satisfied customers. Wolf's Head Oil Refining Co., Inc., Oil City, Pa.—New York 10, N. Y.



WOLF'S HEAD MOTOR OIL AND LUBES

100% Pennsylvania  P.G.C.O.A. Permit No. 6



There's plenty up our sleeve!



**plenty of time-savers
plenty of money-makers
FOR YOU!**

WHEN YOU STOCK THE GASOIL HOSE THAT WON'T ROT, CLOG, LEAK, BREAK OR COLLAPSE, you get plenty of extras to help you make profits.

There's the plastic identification sleeve itself—permanently attached, its lasting catalog information quickly tells you where to use the hose assembly.

Next, there's the distinctive maroon color that tells you it's gasoil hose with the compar tube that is totally unaffected by gasoline, lube oil, crankcase additives, and grease—totally unaffected, too, by vibration and flexing.

Resistoflex gasoil hose—for 7 years original equipment—is now available to dealers for the first time. Tell your distributor you're interested in this quality line.



**ORIGINAL EQUIPMENT IN AIR,
OIL, AND FUEL SYSTEMS OF
CARS, TRUCKS, BUSES, TRAC-
TORS, VESSELS AND AIRCRAFT**

RESISTOFLEX

Trade-Mark Reg. in U. S. & Can. Pat. Off.

**Resistoflex Corporation
Belleville 9, New Jersey**



**PLANTS: Belleville, N. J.;
Elkhart, Ind.; Toronto, Can.**



One of the most reliable parts of an engine is the AC Fuel Pump, heart of the fuel system. That's because it's *first quality* in design, material, and manufacture,—built to meet the engine maker's own requirements.

Serve your customers best, and protect your own reputation, by replacing worn pumps with new or factory-rebuilt AC's, and making repairs with authentic AC Parts Kits or Diaphragm Kits.

QUALITY FEATURES

- ★ Careful control of pressure and flow assuring correct fuel supply.
- ★ Accurate hardening, precision machining of parts essential to long life.
- ★ Accurate control of spring tensions and temper.
- ★ High, and controlled, pin hardness.
- ★ 4-layer, patented-impregnation diaphragms of special airplane cloth.
- ★ Carefully finished rocker arm pads, located to center on cam.
- ★ Split-hair rocker arm clearance and control of pad hardness.
- ★ Uniform pull rod hardness at pin holes.

AC FUEL PUMPS

SEND FOR AN AC PUMP SHOP MANUAL

Field Service Department, AC Spark Plug Division, G. M. Corp.
910 Mott Foundation Building, Flint 3, Michigan

Gentlemen: Please send at once, no charge, the AC Shop

Manuals checked:

<input type="checkbox"/> How to Service Spark Plugs	<input type="checkbox"/> HOW TO SERVICE FUEL PUMPS
<input type="checkbox"/> How to Service Spark Plug Cleaner	<input type="checkbox"/> How to Service Air Cleaners
<input type="checkbox"/> How to Service Oil Filters	<input type="checkbox"/> How to Service Speedometers
<input type="checkbox"/> How to Service Ammeters and other Instruments MA-6	

NAME _____

FIRM _____

STREET ADDRESS _____

CITY _____

STATE _____

ANNOUNCING THE NEW...

prest-o-lite

**ADD WATER
3 TIMES**

IT'S HERE!

*Ask the man
behind the...*

3

*IN NORMAL CAR USE

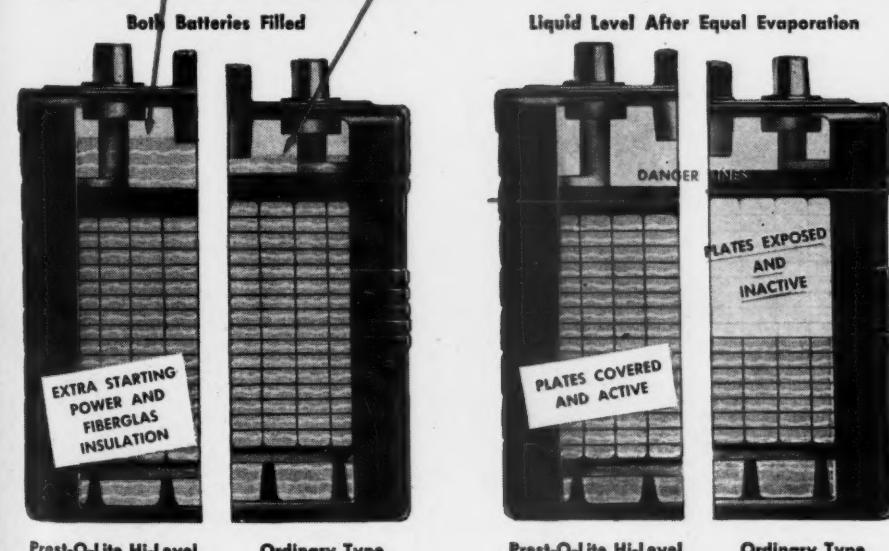
hi-level

ONLY

A YEAR!

HERE'S WHAT MAKES THE DIFFERENCE

Unique new design and construction gives Prest-O-Lite Hi-Level more than 3 times the liquid reserve of ordinary batteries.



Prest-O-Lite Hi-Level

Ordinary Type

Prest-O-Lite Hi-Level

Ordinary Type

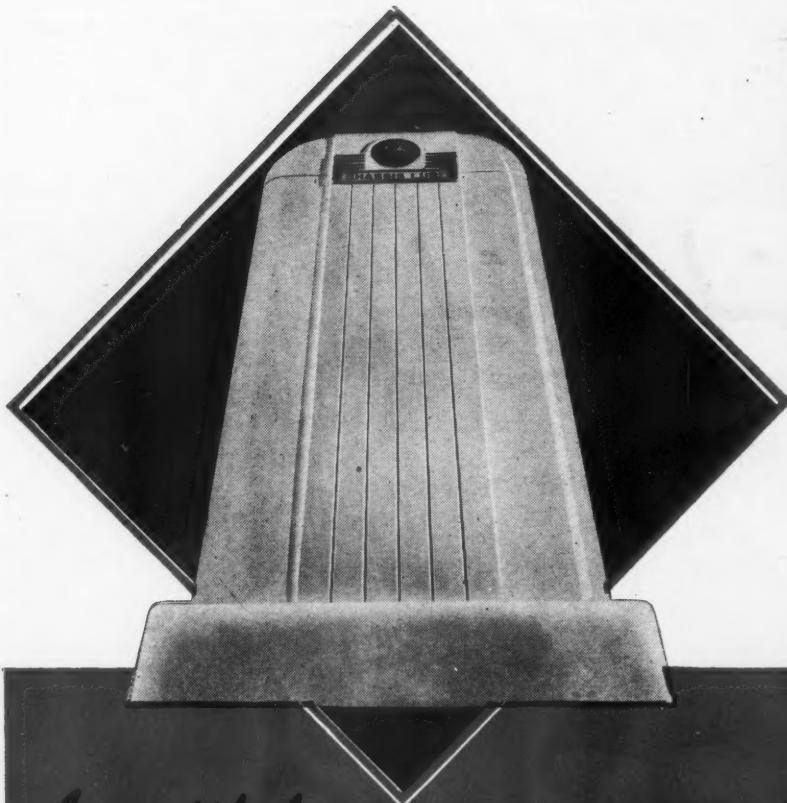
Illustrations above show the result of equal evaporation in the Prest-O-Lite Hi-Level Battery and other batteries. As shown by illustration on the far right, plates of ordinary batteries are exposed sooner by water loss and then become inactive faster.

The amazing Hi-Level principle gives you a battery that is really different—a battery with exceptional sales advantages. What's more, Prest-O-Lite Batteries with oversize electrical capacity and Fiberglas insulation last longer than batteries without the Prest-O-Lite Hi-Level features.

Find out about this new battery sensation and the business-boosting promotion program behind it . . . radio that spotlights your business, promotion kits, the Prest-O-Lite Profit Plan . . . Yes Sir! If you want a battery deal that puts you out in front ask the man behind the "3-Ball" or write to

PREST-O-LITE BATTERY COMPANY, INC.
INDIANAPOLIS 6 • INDIANA

U.S. LUBE UNITS



beautiful IN APPEARANCE!

U. S. Lube Units with their beautiful baked enamel finish enhance the appearance of any service station. Their "eye appeal" bespeaks smart merchandising, prestige and lube sales. Easy to handle, operate and to keep clean. The DeLuxe models equipped with the U. S. patented elevator, raises the entire cabinet and pump out of the way while changing the grease drums. This not only simplifies and eliminates entirely the back-breaking job of changing drums but also protects the cabinet from being scarred and scratched while this operation is being performed.

outstanding IN PERFORMANCE!

The backbone of any lube unit is its pump and the U. S. lube pump is recognized as the most unique and outstanding pump on the market. It boasts of many features such as single air valve which assures positive action on both the up and down stroke producing a flow of lubricant on every stroke. Valve will not leak because it operates against a seat of glass nitrilloy steel. Better or more beautiful lube units cannot be had at any price.

Send for free U. S. Lubricating Catalog.



THE UNITED STATES AIR COMPRESSOR CO.

CLEVELAND 5, OHIO, U. S. A.

AIR COMPRESSORS • HYDRAULIC LIFTS
GREASING EQUIPMENT





Lubricate

● Concentrate on brake work and you concentrate on profit!

Check brakes at every opportunity. Whenever you lubricate chassis parts—or do any kind of lift work—just pull a wheel and examine the brake lining. You'll find hundreds of prospects for profitable relines.

Reline with Raybestos and you give *full-range* brake control—easy, positive slow-downs, as well as quick, smooth stops.

Raybestos (and only Raybestos) builds all the seven different types of lining necessary for this *full-range* braking. Each of these materials has special friction qualities—and the correct combination, in Proving Ground Tested Sets, gives better braking for every car and truck.

THE RAYBESTOS DIVISION

of Raybestos-Manhattan, Inc.

Bridgeport, Connecticut

CHECK
BRAKES!



RELINE WITH

Raybestos

AMERICA'S BIGGEST SELLING

BRAKE LINING

PG PROVING GROUND TESTED
BRAKE LINING • BRAKE BLOCKS
CLUTCH FACINGS • FAN BELTS • HOSE
for Cars, Trucks, Buses and Tractors



AUTOMOTIVE AIRLINE EQUIPMENT GEARED FOR FAST SERVICE!!

The worm has turned, today the motorist is in the driver's seat, demanding fast service and you must give it to him if you expect to hold his business. Hansen automatic equipment is designed and engineered for the modern service station and car dealer and has been widely used and accepted by the trade for a quarter of a century. The Hansen Automotive Airline Equipment will enable you to render better and faster service and produce a more thorough job at less cost in less time.

Send for free Automotive Catalog.



HANSEN JET OILERS

HANSEN JET OILERS are compact, easy to handle and manually operated. They project a solid jet of light or penetrating oil when plunger is depressed. All pump parts are enclosed in the handle, fully protected. Oil container has one quart capacity.



HANSEN AIR HOSE COUPLINGS

HANSEN AIR HOSE COUPLINGS are extensively used around service stations because of their simplicity, ease of operation and long life. Can be used outdoors as well as indoors as all parts are fully protected.



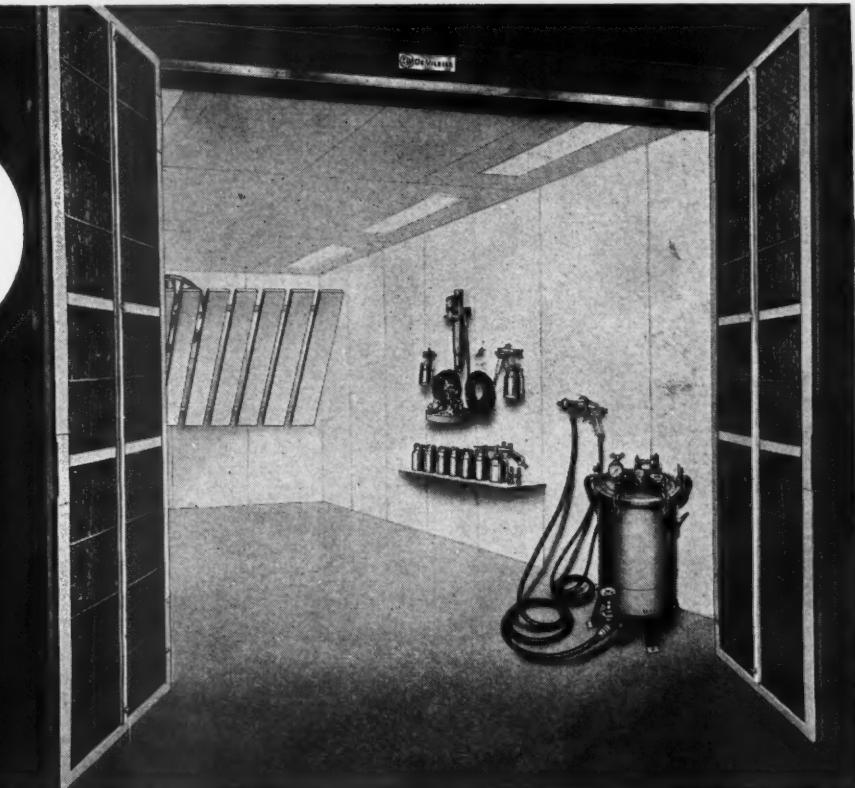
HANSEN SAND BLAST CLEANERS

HANSEN SAND-BLAST CLEANERS are an ideal unit for removing old paint, rust, carbon etc., and for cleaning parts for welding and soldering.

HANSEN MFG. CO.
1786 EAST 27th STREET
CLEVELAND 14, OHIO

Here's your complete Painting Department

ESTABLISH HEADQUARTERS
FOR BETTER, FASTER
REFINISHING!



• Here's a new, modern DeVilbiss Paint Shop with complete facilities that sets you up to handle the large volume of profitable paint jobs that are rolling past your door!

You can go after repaint business now—get it—and handle more jobs with greater ease, more speed, better workmanship and at lower cost in this complete, compact painting department that's the most modern

obtainable. It's DeVilbiss throughout including spray booth, filter doors, exhaust fan, fluorescent lighting, air compressor and an assortment of spray equipment for all types of refinishing.

With this DeVilbiss Paint Shop you'll establish headquarters for better, faster refinishing. You'll handle minor touchup jobs, complete refinishing work and capital-

ize too on the increasing popularity of underbody coating.

Most of your customers expect to wait a long time yet for new cars. Tell them about appearance reconditioning. Sell them on repainting. Your DeVilbiss distributor will help you procure this equipment to do the job.

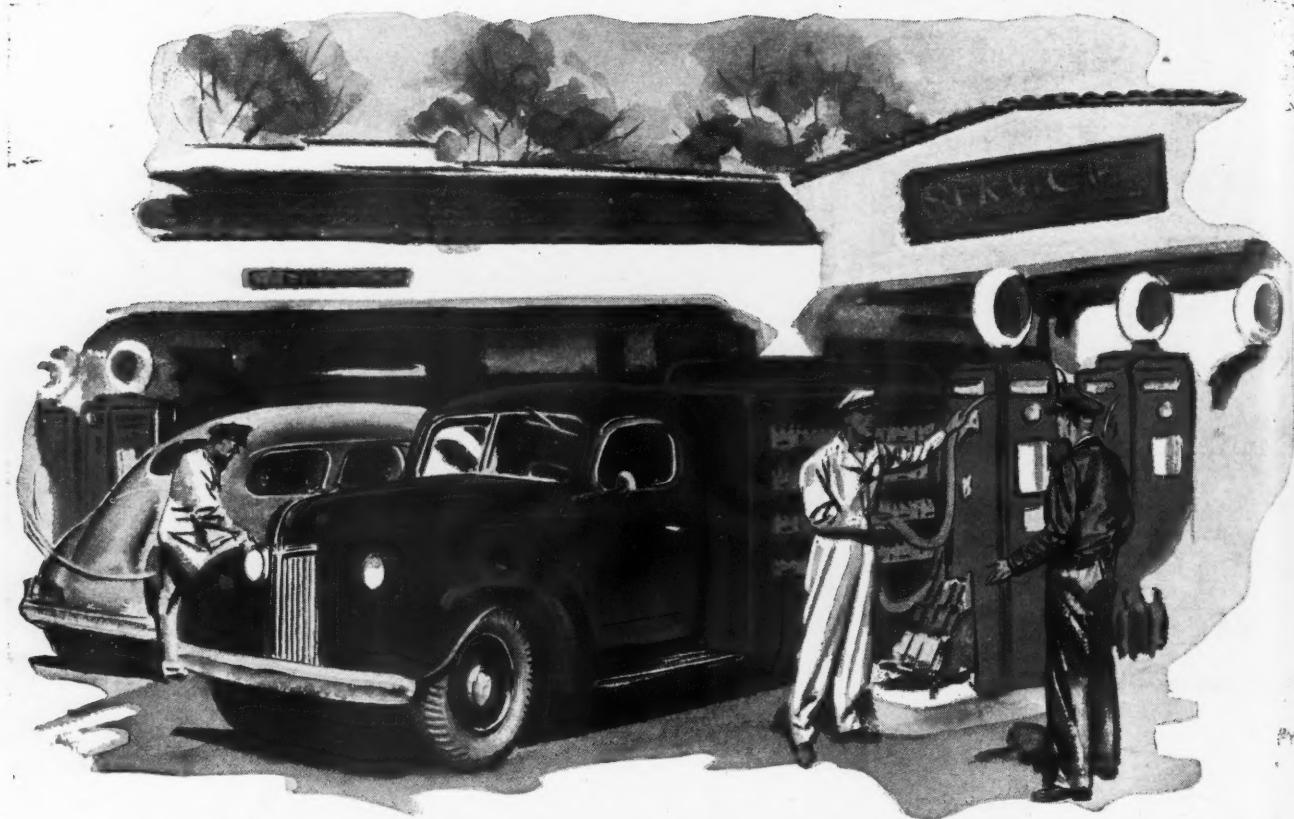
THE DEVILBISS COMPANY
Toledo 1, Ohio
Canadian Plant: WINDSOR, ONTARIO

DE VILBISS



means Quality in all four..

SPRAY EQUIPMENT
EXHAUST SYSTEMS
AIR COMPRESSORS
HOSE & CONNECTIONS



HOW BRAKES SAVE GASOLINE

Gasoline consumed by increased idling speeds of motors does not haul a pay load. HYCON Brakes are 100% hydraulic. They require no vacuum-actuated "boosters." Consequently, the carburetors on HYCON-equipped trucks can be adjusted to maximum idling efficiency for economical fuel usage, and to reduce wear and tear on their motors. HYCON Compound Cylinders provide positive braking control whether motors are running or not. That's why HYCON Brakes can cut your fuel bill.

HYCON Brakes Save Tires, Too

These all-hydraulic brakes reduce tire-scuffing because the power they deliver at the wheels is always under the driver's positive control. Pedal pressures are in direct proportion to braking pressures. The safety factor is increased because the lag caused by atmospheric pick-ups is eliminated. They are low in first cost and maintenance, and can be installed without special training or equipment.

Make a Trial Installation

A test on your own trucks will prove the advantages of the HYCON Compound Cylinder. Get a trial unit and make your own tests. Now available are units to replace 1 1/4" and 1 1/2" Di. original equipment master cylinders. Order from your local power brake distributor or direct from The New York Air Brake Co., 420 Lexington Avenue, New York 17, N. Y.



CONTROLLED

BRAKING

COMPLETELY

HYDRAULIC

Eliminates brake lag, improves safety factor, simple and quick to install, cuts tire wear and fuel consumption, reduces maintenance.

Look for the Registered Trade Mark

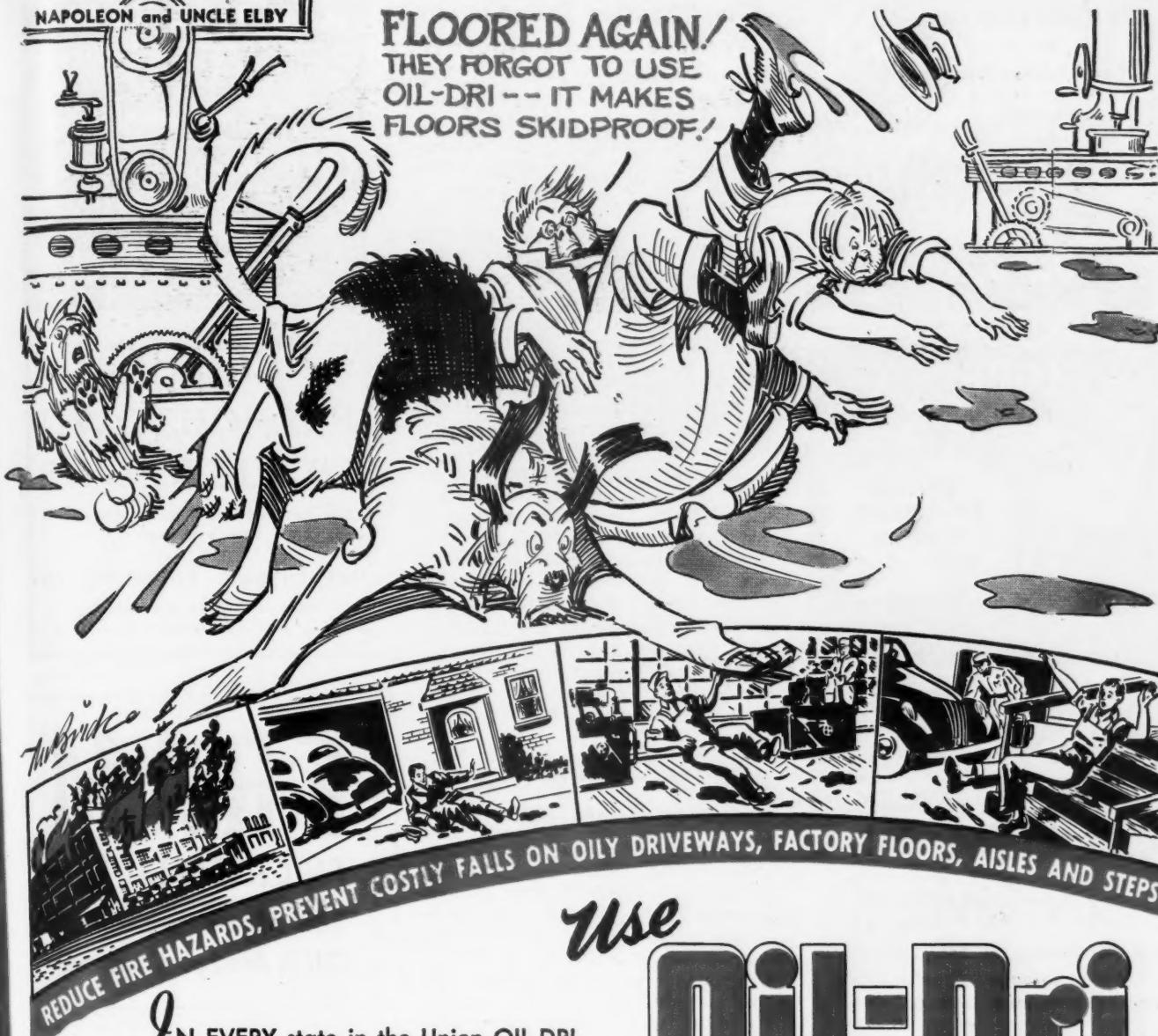


THE NEW YORK AIR BRAKE COMPANY

420 Lexington Avenue, New York 17, New York

NAPOLEON and UNCLE ELBY

FLOORED AGAIN!
THEY FORGOT TO USE
OIL-DRI -- IT MAKES
FLOORS SKIDPROOF!



*I*N EVERY state in the Union OIL-DRI and OIL-DRI-(All-Purpose) are used regularly by factories, breweries, food plants, repair shops, service stations and power plants to remove dangerous oil and grease accumulations and oil-and-water "slicks" from floors around equipment, on steps and in aisles. Their use greatly reduces the hazard of destructive fires and costly falling accidents.



For Free Factory Demonstration Write Direct to

Oil-Dri Corporation
OF AMERICA

Member of National Safety Council

5036 N. Ravenswood Ave.
CHICAGO 40, ILLINOIS



THE COMPLETE LINE
that
Completely Satisfies

Since 1906

The
Fitzgerald Mfg. Co.
Torrtinton, Connecticut.

Fitzgerald
GASKETS



CAMPBELL
Lug-Reinforced
TIRE CHAINS

THE CHAIN WITH THE SAW-TOOTH GRIP
Greater Mileage Greater Safety
INTERNATIONAL CHAIN & MFG. CO., YORK, PA.

REBUILT GENERATORS
and STARTERS
also REWOUND ARMATURES
For All Popular Make Cars

IMMEDIATE DELIVERY

We stock only original units. All generators
rebuilt with rewound armatures.

Write for Price List D.D.

HASCO PRODUCTS, INC.
131 Park Ave. Lyndhurst, New Jersey

Ask about the
FOX
RAPID
BATTERY CHARGER
FOX PRODUCTS COMPANY
PHILADELPHIA 41, PA.

Simplification Program on Wrenches Meets Approval

The proposed simplified practice recommendation for open-end and box wrenches has been approved for promulgation, according to an announcement of the Division of Simplified Practice of the National Bureau of Standards. It became effective from April 15, 1946, and will be identified as R220-46, Open-End and Box Wrenches.

The recommendation covers all double-head, open-end and box wrenches of alloy and carbon steel, except those having openings that are not based on standard bolt sizes, such as small ignition or electrical wrenches, midget-type box wrenches, tappet wrenches, brake wrenches, etc. This simplification program, comprising a list of types and sizes of open-end and box wrenches for regular stock purposes, was developed by a simplified practice committee of manufacturers in cooperation with the Division of Simplified Practice.

Until printed copies of R220-46 are available, mimeographed copies may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington 25, D. C.

Synthetic Rubber Gain Cited at Conference

Forecast that development of synthetic rubber during next 25 years would be comparable to that of rayon between 1923 and 1946 (1923 rayon production, 30,000,000 pounds; 1946 estimated production, almost one billion pounds) was made by R. S. Wilson, vice-president of Goodyear Tire & Rubber Co. in a recent address before government and rubber industry representatives.

Wilson, last of the National Rubber Directors during the war, speaking on subject "Future of Synthetic Rubber," urged the rubber industry, through Rubber Manufacturer's Association to decide upon a generic term to displace the term "synthetic rubber" on grounds that the latter appellation carried an implication of inferiority in the public mind no longer applicable to the substance.

Further, Wilson urged that America take steps to assure a minimum supply of 100,000 tons of natural rubber a year by development of plantations in Western Hemisphere, preferably Central America. "It is perfectly possible to develop in 10 years time a planted area in Central America capable of producing 100,000 tons of natural rubber annually at maturity," Wilson stated.

"With synthetic rubber and 100,000 tons of natural rubber per year in Central America, the United States will be absolutely and totally independent of rubber for the first time in our history."



You Can Rely On

FRENCHTOWN INSULATORS

Used by more spark plug manufacturers than any other.

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Muck and scale quickly removed and brake cylinder polished to a mirror finish in a few seconds. Eliminates wasteful outside trips Does the entire job in your own shop. \$3.25 FROM YOUR JOBBER

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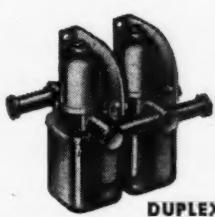
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AUTOPULSE SERVES ANY CAR OR TRUCK...

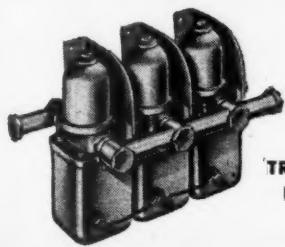
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Autopulse will set you up to furnish any driver with a new fuel pump regardless of what car he is driving—one and the same pump used on all! Your complete inventory can be as low as \$18.00. A small added investment sets you up for trucks also.

The Autopulse Electric Fuel Pump has been used by car owners and fleet operators for 20 years.

When you handle the Autopulse, you'll never have to turn a job down because you haven't the right model or size for that particular vehicle. The Autopulse is the UNIVERSAL FUEL PUMP, easy to install and always ready to go.



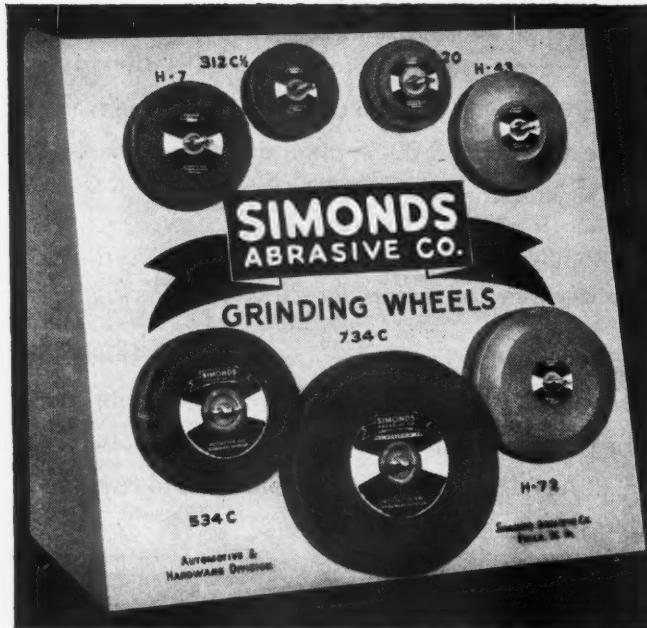
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Buy *Automotive* Grinding Wheels

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For better grinding results, use Simonds Automotive Grinding Wheels. The specially selected styles and sizes you buy from your jobber's Simonds Automotive Display are the same top quality wheels which leading automobile manufacturers use in building cars. From putting new edges on screw drivers, on through the range of repair work, to precision grinding of valves and tappets, you'll get grinding results that help build profits and customer satisfaction.

Ask your jobber for Simonds Automotive Grinding Wheels.



SIMONDS ABRASIVE CO. is a
Division of



SIMONDS ABRASIVE COMPANY, TACONY & FRALEY STREETS, PHILADELPHIA 37, PA.

IN THE SPOTLIGHT . . .



These Grafield "PF" Prescribed Friction Sets live up to their name in two ways. First they have that peak quality for which all Grafield Brake Lining products are known — quality reflected in their thorough road tests as well as their laboratory check-ups. Second, they're prescribed or engineered for each brake to give scientifically

correct friction for each particular type, much as a physician's prescription gives scientifically correct medical treatment.

Expect big things from these sets — among them longer service and greater satisfaction. Instruction chart with installation directions in each box.

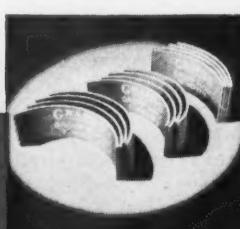
WORLD BESTOS CORP.
PATERSON, NEW JERSEY



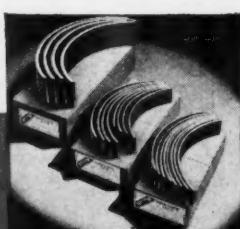
Grafield Deluxe Woven — A super-quality, dense, high friction lining for passenger cars, trucks and industrial applications.



Grafield Royal Grid Molded (Rolls) — a top quality molded lining designed for internal brakes. Quiet and long-lived.



Grafield Truck Group Blocks These group blocks are for thousands of models of trucks dating from 1933.



Grafield Grid Lock Sets — Wire back sets for Ford, Chevrolet, Plymouth and the popular GM and Chrysler cars.



Grafield Metro Blocks — Type "Y" for normal service. Type "D" for extreme heat. Type "E" for quick-stopping buses.

GRAFIELD . . . a Complete Line of Brake Linings (Catalog on Request)

CLUTCH FACINGS • RIVETS
BRAKE SHIM STOCK • RELINING EQUIPMENT

GOOD LUCK!!
AND ARE YOU LUCKY
I'VE GOT...
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HYDRAULIC BRAKE PARTS • BRAKE FLUID

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ARROW SAFETY DEVICE CO.
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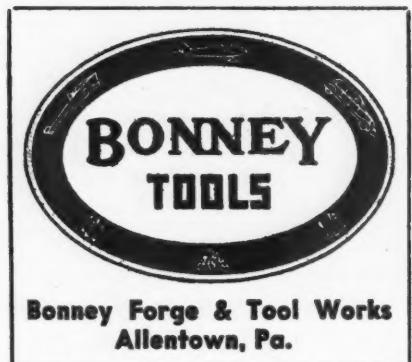
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Manufacturer's
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AND
Jobbers

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IGNITION
AND
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CLARK CABLE CORP.
1554 SUPERIOR AVE. • CLEVELAND, OHIO



Auto Electrical Equipment For Republic Planes

Standard automotive electrical equipment manufactured by The Electric Auto-Lite Co. will serve as original equipment on the 5,000 Seabees to be constructed this year by The Republic Aviation Corp.

In announcing the selection of Auto-Lite equipment Alfred Marchev, president of Republic Aviation, said, "Extensive utilization of adaptable automotive equipment for the Seabee is a logical part of Republic's program for reducing the cost of personal airplanes, and at the same time increasing their range of usefulness and their lasting serviceability. It is part of a policy which aims to make it both possible and practical for more people to fly, and to make more people want to fly."

Though Auto-Lite made special airplane equipment during the war, the electrical units being used by Republic on its new plane are substantially the same as electrical equipment now being manufactured by Auto-Lite for America's passenger cars and trucks.

New Device Warns Motorists About Tires

"Tyr-Chek," a new product designed to give the motorist warning when tires become under-inflated, is announced by the T.E.D. Corp., 928 S. Flower St., Los Angeles. Made of clock spring steel, the device is applied out of sight on the inside of the rim with one end resting against the tire. If tire pressure decreases, the "Tyr-Chek" is bent by the outward bulge of the tire on each revolution of the wheel and telegraphs a clear warning click to the driver. There are no moving parts to wear out, and the whole piece is weatherized to last the life of the automobile.

Protective Compound

To prevent and eliminate corrosion on battery cables and connections, "Yu-Re-Nu," a liquid, self-vulcanizing, synthetic rubber compound, is now being marketed by R. S. Jones and Son, San Gabriel, California. Easily painted as a protective coating on battery cables and connections, it also forms protective insulation for bare copper or aluminum wires. No heat is required for application. Costly rewiring of cracked, worn or leaky wires is said to be eliminated by the heavy rubber coating. The compound immediately dries damp, soggy wires and protects against further moisture. It is said to be resistant to water, oil, grease, gasoline, battery acid, heat and cold. Also recommended for repairing leaks and cracks in rubber articles such as boots, overshoes, raincoats, etc.



What you want
.....
When you want it

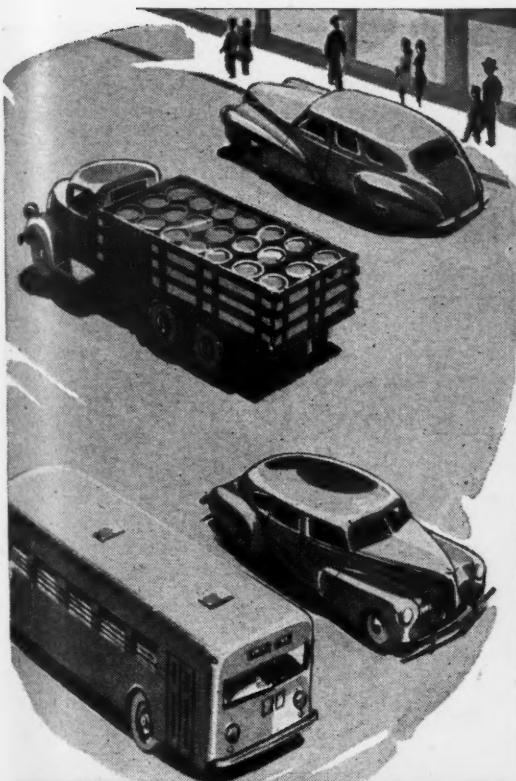
... Parts, Equipment,
Supplies, Machine
Shop Service . . .
at your
M-E-W-A Automotive
Wholesalers



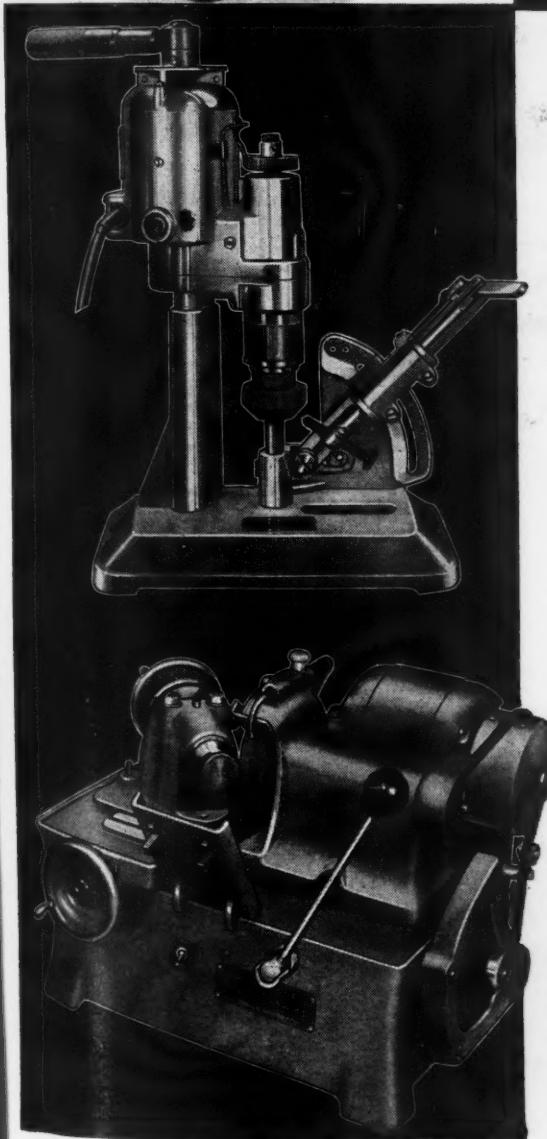
**QUIETER
STRONGER
SELF-CLEANING**

You'll make more muffler profits
with Pratt! Ask your jobber now!





A DEMAND FOR POWER IS A DEMAND FOR **HALL** **SERVICING**



Old engines demand new power for efficient, economical performance. . . This demand can best be met with HALL valve and cylinder servicing equipment because it enables the service mechanic to duplicate original factory standards of precision and finish in the shortest time at the lowest cost. . . Consult your HALL jobber or write the factory today for complete information on the HALL equipment you need.

THE HALL MFG. COMPANY
TOLEDO 7, OHIO

HALL

Touch the Button



Fresh air's grand—but for relief from air roar, touch the button.



To say, "Where do I park?" Touch the button.



"Too windy back there?" Touch the button.



Want to signal for a turn? Touch the button.



Sudden gust of dust? Touch the button.



Want to pay the gas man? Touch the button.



See a splash coming? Touch the button.



Want to ask your way? Touch the button.



It's easier than flicking the ash to touch the button.

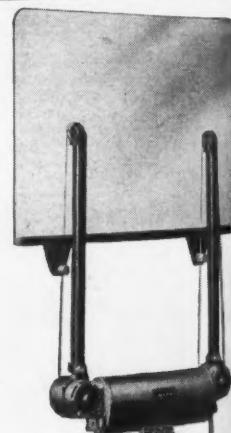
Yes, dozens of times a day—thousands of times a year—you will find Trico Lift-O-Matic one of the biggest conveniences on your motor car. For with Lift-O-Matic, your car window flashes up or down in a split second. Your hand barely leaves the wheel—your eyes never leave the road.

The power which operates it is costless, for it is harnessed air power—the same force which lifts an airplane and keeps it flying. Lift-O-Matic can be installed on all windows—or only on the all-important driver's door. Provision for optional installation may be looked for in the car of tomorrow.



Lift-O-Matic Harnessed Air Power

Touch Button Control of Motor Car Windows . . . Trico Products Corporation, Buffalo 3, N. Y.



Completely concealed within the door

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JUN



Original Equipment Quality Means Satisfied Customers

When you put Inlite on your brake jobs you can depend on it to satisfy customers and build business—because your customers can depend on Inlite for a long life of smooth, straight-line stops. It's a one-top-quality line, engineered to original equipment specifications. Every Inlite segment and set has the same uniformity of structure, and the same remarkable wear factor. And that's

not all. Inlite eliminates time-wasting readjustments—it comes into normal operation at once and gives the same

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PISTON SLAP
OIL PUMPING
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MASTER RECAMs are individually designed for all late model cars; easily installed without removing pistons. The profitable way to Stop Piston Slap, Oil Pumping and Motor Noise.

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Firm Organized for Valve Reprocessing

Formation of the Parts Processing Corp., Detroit 16, Mich., for the reprocessing of intake and exhaust valves for heavy duty engines and to make available a convenient exchange service for fleet operators has been announced recently. The basic product is a seasoned used valve, suitably reprocessed to meet the specifications for original equipment for all heavy duty engines, including aircraft engines. These refinished valves are Stellite-faced and are said to offer many times the life of conventional valves at a price claimed to be only slightly higher than that of the best alloy steel valves.

Stellite-faced valves for all popular makes of trucks will be carried in stock by distributors on an exchange basis. A custom service department is operated for reprocessing valves of sizes and types not available in distributors' stocks.

In practical operation, the procedure is to select used valves by careful inspection. The heads and valve faces are cleaned and machined to take the Stellite facing while the stems are straightened and later polished. The valves are held in specially designed fixtures which hold and slowly rotate the valve while skilled operators apply the Stellite face. Valve heads then are packed in powdered lime to provide the slow cooling required for the annealing and toughening of valve heads and necks.

In the final operation valve faces are accurately ground to original specifications. Stem ends also are suitably ground. The last step is to assure rigid quality by the use of Zyglo inspection, a procedure developed by the Magnaflux Corp., for checking the soundness of non-magnetic parts.

"Tru-Torque" Tools

The new "Tru-Torque" line of torque measuring and controlling screwdrivers is announced by Airdraulics Engineering, Inc., New Canaan, Conn., in a catalog data sheet available upon request. These small, lightweight tools are of the friction-disk type.

In operation, the screwdriver is pre-set at the desired torque—when the torque is reached in tightening a screw, nut, or bolt, the screwdriver handle slips and no further tightening of the screw is possible. There are no dials to read or spring mechanisms. "Tru-Torque" screwdrivers come complete with one regular blade for slotted screws, nuts, or bolts, one Phillips-type blade, one Allen wrench and pin setter. Snap-on adapter is also available.

Since 1897

UNITED STATES ELECTRICAL TOOLS

have never swerved from their original standards of QUALITY AND SERVICE

THE UNITED STATES ELECTRICAL TOOL CO.
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MAREMONT HAS WHAT IT TAKES

MUFFLERS — TAILPIPES
ALLOY STEEL SPRINGS

MAREMONT AUTOMOTIVE PRODUCTS, INC.

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Make Big Profits on Small Investment in

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Ask your Shurhit jobber or write us for details on General Ignition Assortments of fast-moving parts... Contact Points... Condensers... Rotors... Caps... Coils... Switches, etc... complete in all-steel stock and display cabinet.

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Colossus Buys Quality



LOOK at the nationally known names on the farmer's tractor . . . his tools . . . his wife's household appliances . . . the packaged foods in her cupboard. The American farmer's convictions on quality spring from hard experience.

He knows that good seed in fertile soil produces bigger yields; that pure-bred cattle give more and better milk, make the best beef. He shuns the shoddy, because he is not only a good farmer but a good business-man.

Today, as he and his wife plan the biggest purchases they ever made, price is but one of the deciding factors. Look for these biggest purchases on farms where income is also biggest. From Country Gentleman farms, the *top-half* farms making nearly three-quarters of all farm purchases.

In his reading matter, too, Colossus buys quality. Leaf through any issue of Country Gentleman and see the quality fare set before him month

after month . . . articles, editorials, and the advertisements of America's leaders.

He and his family look upon Country Gentleman as friend, counselor, and guide.

Facts of Special Interest to the Automotive Industry:

"Farmers are desperate to drive home some new trucks and cars—maybe a billion dollars worth!"—Clinton Anderson.

The rural market accounts for 42% of all cars and trucks in the U. S.

Automotive dealers, by almost 3 to 1, vote Country Gentleman the most effective rural magazine in selling their customers.

Farmers' incomes have doubled in the last five years!

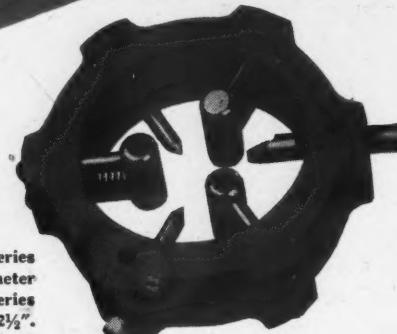
For the last ten years automotive manufacturers have invested more advertising dollars per issue in Country Gentleman than in any other magazine but the "Post".

Country Gentleman

NATIONAL SPOKESMAN FOR AGRICULTURE
A CURTIS PUBLICATION

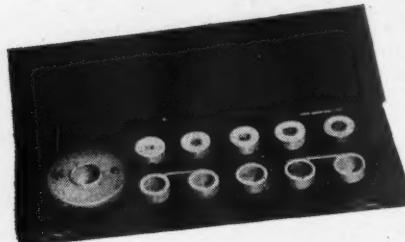
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**TILLER
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**TILLER
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Two sizes. Small size (Series 500) re-threads any diameter $\frac{5}{8}$ " to $1\frac{1}{4}$ ". Large size (Series 2000) re-threads 1" to $2\frac{1}{2}$ ". Any thread right or left. SAE or Standard.



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"NEW THREAD"
(Series 1000)**

Re-threads $\frac{1}{4}$ " to 1" diameters in multiples of $\frac{1}{16}$ ". Any thread, right or left. SAE or Standard.

**Re-cuts Any
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**ON BOLTS, STUDS, AXELS,
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Now recutting damaged threads is easy. The Tiller Rethreading Tool automatically follows old threads, re-cuts and cleans up damaged parts quickly. Any thread—right or left—any number to the inch. SAE or Standard. Automatic guide gives perfect, accurate cut. Strictly a high-grade, well designed tool. Many now in use. Immediate delivery. Write for complete description, or ask your jobber. Tiller Bldg. & Engineering Co., Omaha—Mailing address Box 343—MA1, Bellevue, Nebraska.



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It will pay you to install dependable MASTER Replacement Parts on all of your repair and replacement work. MASTER parts are preferred by repairmen the world over!



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Chek-Tabs

BRING 'EM BACK!

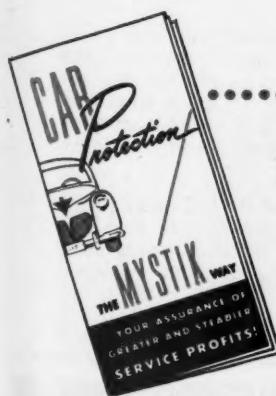


Look at all those profitable services on the Chek-Tab above! Now imagine this tab in a customer's car doorjamb. Isn't this the perfect way to give him a complete service record and a reminder to come back?

No customer can keep track of *all* the services his car needs. Neglected services mean poor

performance and maybe serious damage to his car . . . and lost sales and profits to you.

So put a Chek-Tab on every car. Customers like it! It brings 'em back to you! Get Chek-Tabs from your suppliers—for all kinds of services, from oil and lubrication to accessories and repairs.



FREE—Here's how to use Chek-Tabs for more profits. This book has 20 pages packed with sales ideas. Get your copy now. For service stations, car dealers, garages, and their suppliers. Write—Mystic Adhesive Products, 2640 N. Kildare, Chicago 39.

Sales offices in all major cities. Export office—New York City. Canada—G. A. Moggridge Co., Ltd., St. Catharines, Ont.



Self-Stik Cloth and Paper Tapes, Protective and Masking Materials, Waterproof Packaging Papers, Advertising Signs and Displays, Self-Stik Stencils.



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In ordering advise make, year and model of car.

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Unbalanced Wheels Cause
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EVERY revolution of an unbalanced wheel, as it thumps along the road, not only causes excess wear on tires, but also causes vibration which damages the steering gear and other vital mechanisms. This is why you do your customers a really good turn when you balance the wheels on their cars. And, of course, you make a nice profit, too.



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16893 Wyoming • Detroit 21, Mich.

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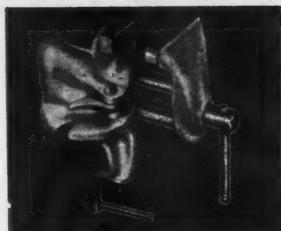
for wall chart showing
the pounding effect of
unbalanced wheels.

**WHEEL
BALANCING WEIGHTS**



GRAND Speed QUIKSET VISE

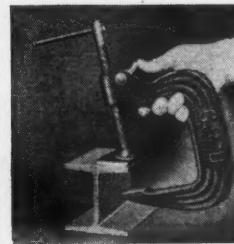
- No Wasted Time . . . Instant Ratchet Screw Closing and Instant Trigger Release.
- Balanced Precision Grip at All Points. Serrated Jaws Integral with Body.
- Multiple Strength! Anvil Top . . . Bottom Screw Clamp for Quick Shifting of Vise.



FAST ACTION . . . EASY OPERATION OPENS INSTANTLY TO FULL 3 INCHES

Free jaw slides swiftly on ratchet screw and precision guide rods. Tightened securely with turn of loose-proof handle. Trigger releases ratchet screw and steel spring on lower guide rod, and automatically shoves free jaw out to full opening. Vise is ready without further adjustment for instant closing on other work.

SPEED CLAMP WITH EXTRA DEEP THROAT



- Immediate Action . . . No Lost Time in Loosening or Tightening Screw. Instant Ratchet Screw Closing and Instant Trigger Release.

Clamp releases instantly . . . Simply loosen handle and push on trigger. Tightens in same quick, easy manner . . . slide ratchet screw to position and lock with turn of Loose-Proof handle. Holds work with even tension grip on any surface, even slanting or irregular. Ball and socket swivel prevents shifting or creeping.

Ask for complete catalog on Grand Speed Vises and Clamps
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FOR SERVICE SHOPS

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New Oakite Way Makes Body-Washing Easier . . . Faster

A clean, streak-free surface that brings out the natural luster of the original finish is the secret of a good automobile body-washing job. Oakite Composition No. 70 can help you put this work on a profitable basis.

Because of its remarkable detergent and easy-rinsing properties, you'll find it quickly and safely removes oil, road grime, without streaking. Oakite Composition No. 70 helps preserve original luster of painted, lacquered, or enameled surfaces. Washing is easier, faster and decidedly more economical.

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OAKITE *Specialized* **CLEANING**

NOW: Malabar post-war hydraulic jacks

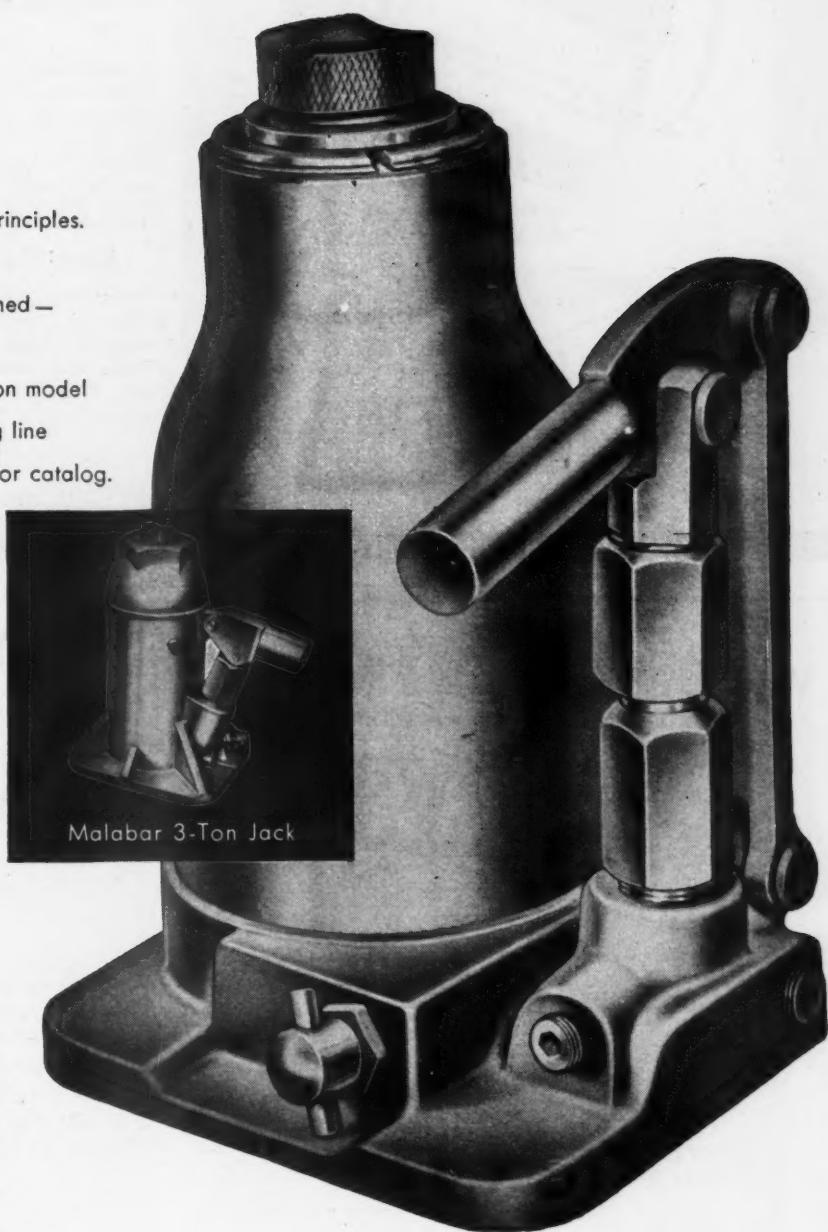
—ALL NEW. Built on war proven principles.

All steel, leak-proof construction.

Almost effortless fast action. Streamlined—

sells on sight—Priced right. 7 models—

5, 8, 12 and 20 tons. Also 3-ton model
in two heights. Here's the money making line
for distributors and dealers. Write for catalog.



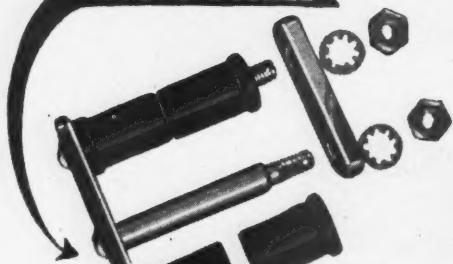
Models, 207 — 3 ton, 8½ inch
Models, 208 — 3 ton, 10 inch
Models, 200 — 5 ton, 8½ inch
Models, 206 — 5 ton, 10 inch
Models, 201 — 8 ton, 9 inch
Models, 205 — 8 ton, 11 inch
Models, 202 — 12 ton, 8¾ inch
Models, 203 — 12 ton, 11 inch
Models, 204 — 20 ton, 11 inch

MALABAR a product division of
menasco MANUFACTURING COMPANY
805 South San Fernando Boulevard, Burbank, Calif.

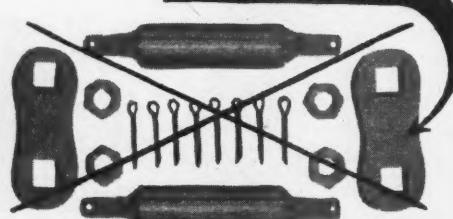
"CUSHION RIDE"
TRADE MARK REG.

RUBBER SHACKLES

THIS SHACKLE



REPLACES THIS



Now! Almost every 1946 car is using Rubber Shackles. We offer the genuine "Cushion Ride" Shackle for replacement on Ford and Mercury, Chevrolet, Plymouth, Chrysler, Dodge, DeSoto, etc.

- Stops "Jitterbug Ride" — Permits old cars to have that New, Quiet "Cushion Ride".
- Genuine NEOPRENE Bushings — Oil and Wear Resisting.
- Completely Cushions and Insulates frame from axle.
- Replace old, obsolete shackles.
- Silent in Operation — No lubrication required.
- Easily and Quickly Installed!

Available Now—for

FORD 1928-42 except '33-'34; CHEV. 1934-42, also fits other cars; PLYMOUTH 1935-42 and Chrysler Group.

Expertly made of quality materials throughout. The rubber bushings are molded to correct size and properly cured for easy, perfect fit.

Insist on "Cushion Ride" Shackles because the Neoprene Bushings stand up and deliver long life for complete customer satisfaction.

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New catalog just off the press! Illustrates our many fast selling items ready for delivery, including Water Pumps and Kits, Solenoid Starter Unit, King Bolt Sets, Shock Links, Special Service Switches, etc.



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**FLUSH
MASTER**



IMMEDIATE DELIVERY

DON'T take their word for it—write today for a free demonstration. There's a salesman in your territory ready to show you how to get these extra profits.

You can have...
MORE PROFIT
You can do a...
BETTER JOB

THEY SAY:—"Machine never fails to attract attention—if one customer is having a flush, the next will invariably have one." EDWARD C. NIES. — "Bought machine thinking it would be good, but never imagined that it would be as good as proven." HAROLD HISSONGS MARATHON STATION. — "For the reasonable price of the unit, we feel it has paid for itself in less than the two months it has been in use." MACK and BOB'S SERVICE STATION.

JOBBER INQUIRIES INVITED

**Manufacturer's
Development Corp.**

WRITE FOR COMPLETE INFORMATION
DAYTON 1, OHIO

HOW TO CHOOSE THE RIGHT BATTERY CHARGER



Before You Buy, Compare the Hartman HR-53-2 With All Rapid Battery Chargers.

Consider these four important factors before buying any rapid battery charger—

- Is it a battery analyzer as well as a charger with three individual cell test meters?
- Will it be a good service salesman? Handsome enough to attract your customers' attention?
- Don't buy on price. Be sure that what you pay gives you the most in quality, engineering and long trouble-free economical service.
- Will the operating cost PLUS the maintenance cost be low enough so that profits will be high?

The extra business the Hartman HR-53-2 Rapid Battery Charger and Analyzer can build for you is being demonstrated in thousands of shops and stations every day.

It is only logical that Hartman, who originated rapid battery charging, should still lead in value and dependable service!

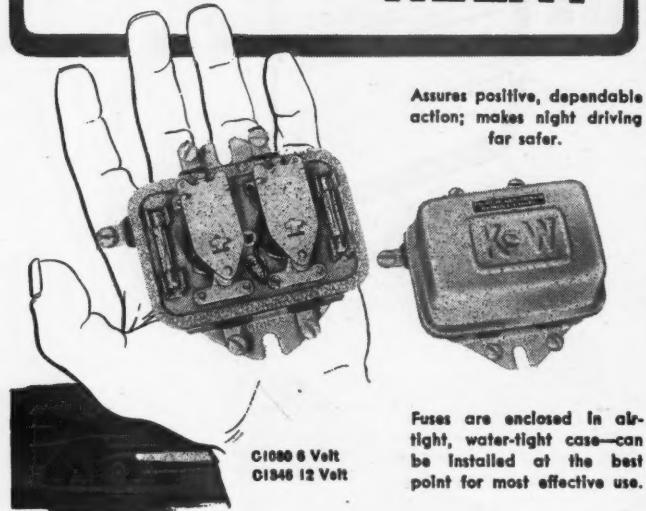
*Your Jobber Has Complete Information
P.S. Immediate Delivery! Order Now!*

THE HARTMAN HR-53-2 OFFERS:

Cooler 100-ampere heavy-duty, self-healing rectifier • individual cell-test meters • single-unit precision adjustment multi-circuit tap switch • cast bronze, insulated, current-saving battery clamps • heavy duty 200-ampere cell test and desulphation/discharge unit • massive, waist-high, beautifully designed, space-saving cabinet • swivel brake caster and heavy rubber tires.

THE HARTMAN
CORPORATION OF AMERICA
"If it's a HARTMAN - it's the best"
6417 MANCHESTER • ST. LOUIS 10, MISSOURI

**K-W STAN-TEST
DUAL HEAD-LITE RELAY**



Assures positive, dependable action; makes night driving far safer.

Fuses are enclosed in airtight, water-tight case—can be installed at the best point for most effective use.

The K-W Stan-Test Dual Head-Lite Relay incorporates the most advanced electrical control design, giving the motorist more brilliant illumination for the clearest, safest vision possible. Packed individually

in sturdy, colorful box. Complete, easy-to-follow installation instructions in every box. The K-W Stan-Test Relay can be sold with the knowledge that you are offering a unit that has been built to the highest engineering standards.

THE K-W STAN-TEST CORPORATION
DIVISION OF
BLACKSTONE MFG. CO. • MORGAN & QUINCY • CHICAGO 7, ILL.



LEAF SPRINGS

for

**All Passenger Cars
Trucks, Trailers, Busses
Special Shaped Forms**

•
TRAINOR NATIONAL SPRING CO., INC.
New Castle, Indiana

GET THESE SUPER TOOLS SUPER DRILL GRINDER

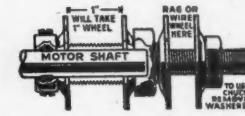


Sharpens round shank drills from $3/32''$ to $1-1/16''$ diameter.

Grinds Old Drills like new in 4 different drill point angles. Grinds Short, Medium and Long Twist Drills from $1\frac{1}{2}''$ up to $11''$ long, for hand or power grinding wheels.

100,000 NOW IN USE!

Grinds your drills like factory in 25 seconds. Gives perfect center and clearance. Saves drills, time and money. No shop should be without the Super Drill Grinder. Guaranteed to do the work or money back. The Grinder that gives a rounded point. Only \$2.95.



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A combination drilling or grinding wheel attachment. For $1/2''$ motor shafts. Will take grinding wheel with $3/4''$ hole on shaft and $1/2''$ hole on small end. Extension can be used for rag or wire wheel, or $1/2''$ 24-thread drill chuck which holds drills from No. 60 to $1/2''$ in diameter. Right hand thread only. Price only \$1.50.

SUPER HACKSAW AND FLAT DIE FILE HOLDER



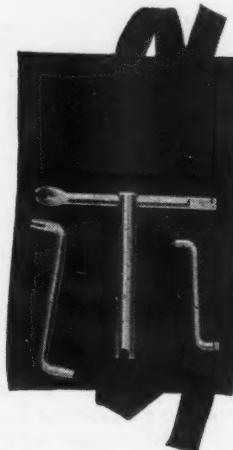
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939 W. 6th St., Dept. MA-6
Los Angeles 14, Calif.

See your jobber — Order direct if he cannot supply immediately.

THE INDISPENSABLE THREE

LANAGAN "TUNE-O-KIT" for fast, accurate motor-tuning. With that "ready-to-the-hand" perfection of design that LANAGAN knows how to contrive . . . and which real mechanics demand. In handy canvas pocket. Here's what it is:

- (1) A tool for accurately aligning *Distributor Contact-Points*, both Delco-Remy and Autolite.
- (2) A tool for adjusting any type of *Voltage-Regulator* to a high degree of precision.
- (3) A contact-adjusting tool for *Ford V-8 Distributors* from the year 1937 on.



Made of high-quality, hardened steel, handsomely plated. Sold separate, if desired. But the three together make natural companion-pieces; and the handy kit keeps them together, just where they belong. See your jobber, or write direct.

Made by LANAGAN & HOKE . . . known everywhere for its line of quality testing instruments.



LANAGAN AND HOKE
Philadelphia 44, Penna.
PRECISION AUTOMOTIVE TESTING EQUIPMENT

TRUCUT

TAILSTOCK REST for LATHES

THOUSANDS in active use today. Accurate, self-centering, the perfect tailstock chuck for supporting armature shafts while machining commutators.



Commutators are machined with bearing surfaces of shafts riding in adjustable bronze jaws, thus assuring commutators being absolutely concentric with shafts. Capacity $\frac{1}{2}$ " to 1". Furnished with #1, 2, or 3 Morse taper arbors.

See your jobber or write

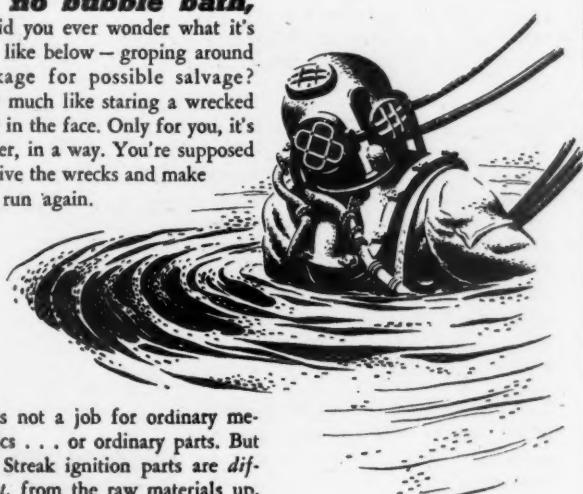
—FRANK N. WOOD CO.—

TRUCUT
Armature Lathe & Undercutter

342 W. MAIN STREET • WAUKESHA, WIS., U. S. A.
PACIFIC COAST ADDRESS: 1340 S. FLOWER ST.
LOS ANGELES 15, CALIF.



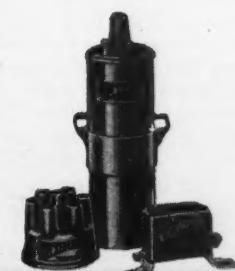
It's no bubble bath, but did you ever wonder what it's really like below — groping around wreckage for possible salvage? Pretty much like staring a wrecked motor in the face. Only for you, it's tougher, in a way. You're supposed to revive the wrecks and make them run again.



That's not a job for ordinary mechanics . . . or ordinary parts. But Blue Streak ignition parts are different, from the raw materials up. Blue Streak points, for instance, are larger than ordinary points; made of high amperage tungsten instead of ordinary tungsten. And every single Blue Streak part is carefully inspected, instead of just a random sampling. Remember that, when you buy!

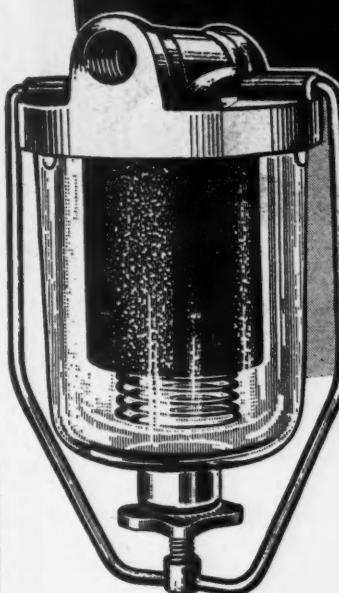
BLUE STREAK

IGNITION PRODUCTS



STANDARD MOTOR PRODUCTS, Inc.
37-18 Northern Blvd., Long Island City 1, N.Y.

*It's a
FAST SELLER
with a
BIG MARKET*



Klemm
GASOLINE FILTER
with Chemistone
the original
CONTROLLED POROSITY
Element

- The only filter with the Chemistone Element.
- Priced low to sell — universally popular.
- Simple in operation — outstanding performance.
- Quickly installed — positive money-maker.

Few specialties equal the Klemm Filter for quick, easy, profitable sales. It fills a real need. Every car should have one! Garages, gas stations and auto stores can sell it easily . . . and install it quickly. It's low-priced and highly-efficient . . . A Klemm Filter insures CLEAR, CLEAN gasoline by removing dirt, water, abrasives and other foreign matter that clog and damage carburetor valves . . . this prevents motor stalling and "frozen" fuel valves. Push this practical, easy-selling item—IT'S A MONEY-MAKER FOR RETAILERS.

KLEMM AUTOMOTIVE PRODUCTS CO.
1718 N. Damen Avenue Chicago 47, Illinois

Export Division, Guterman Co., Inc.,
35 S. William St., New York 4, N.Y.



TO HELP YOU SELL

This colorful merchandising display steps up sales. Remind your jobber to furnish one when you order Klemm Gasoline Filters.

PROFIT

with the

B-L Supercharger

5. Large ammeter provides constant reading of charging rate.

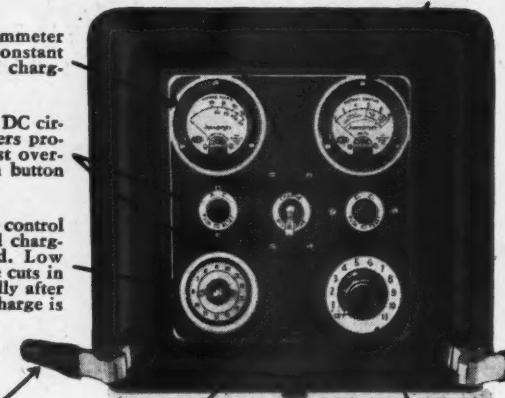
7. AC and DC circuit breakers protect against over-load (push button resets).

4. Set time control to required charging period. Low rate charge cuts in automatically after high rate charge is completed.

1. Attach battery clips to terminals.

8. Conditioner switch for sulphated batteries.

6. Volt and battery condition meter indicates battery condition before and after charge, detects shorts, indicates sulphation or elimination of sulphation.



2. Turn charge control to "ON" position.

3. Set charge control at proper charging rate.

**B-L Leadership in Design
SAVES TIME AND ENERGY —
ELIMINATES THESE OPERATIONS:**

- (a) Removal of customers' batteries.
- (b) Time lost on "frozen" terminals.
- (c) Replacement of terminals broken during removal.
- (d) Maintenance of expensive stock of rental batteries.
- (e) Attention and floor space required to service batteries.
- (f) Reinstallation of customers' batteries.

The foolproof operation of the B-L Metallic Rectifier with which the Supercharger is equipped operates without moving parts and assures long life performance. Light-weight, durable construction and extreme portability of the entire unit means faster service to customers — added savings in time and energy to you.

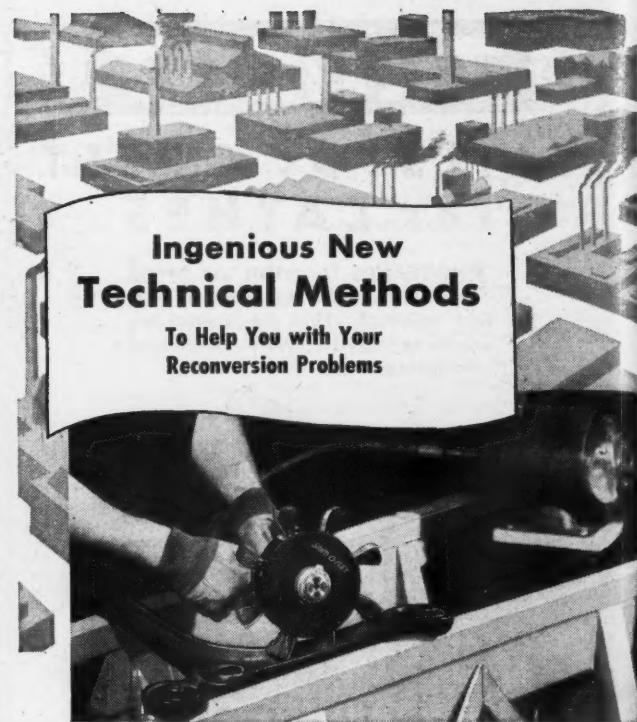
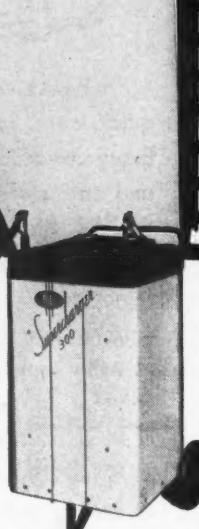
It will pay you to investigate the money-making possibilities of the B-L Supercharger by contacting your jobber today. Immediate deliveries are now being made.

THE BENWOOD-LINZE CO.

1815 Locust Street

St. Louis 3, Missouri

Long Distance Telephone CEntral 5830



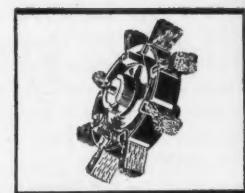
New Brush-Backed, Strip-Fed Abrasive Wheel Deburrers, Sands Any Surface!

For sanding in and around the most irregular contours—for deburring parts too large to be tumbled—for removing rust, paint and imperfections from wood, plastics, rubber, earthenware and metals—the new Sand-O-Flex brush-backed abrasive wheel is MOST PRACTICAL.

The central magazine houses a strip abrasive cartridge, to be fed out as needed in front of the eight brushes which "cushion" the abrasive, and force it evenly over the most difficult surfaces. The Sand-O-Flex comes in 3 sizes, and is adaptable to any stationary or portable motor shaft, with speeds up to 1750 RPM. Abrasives are available in grits for every need.

To help speed production in dry, dusty work atmosphere, many mills and factories urge workers to chew gum to help relieve dry throat. *The reason:* Because dust causes throat irritation and dryness—but chewing Wrigley's Spearmint gum helps keep workers' mouths moist and fresh. *The result:* Reduced work interruptions and "time outs" to the drinking fountain. Even when workers' hands are busy, they can refresh as they work "on the job." And the chewing action helps keep workers alert and wide-awake.

You can get complete information from the Sand-O-Flex Corporation, 4373 Melrose Ave., Los Angeles 27, Cal.



Abrasive Cartridge Shown Open



a "TOOL BOX" in the palm of your hand



Hallowell
SOCKET SCREW KIT
with interchangeable bits



SOCKET WRENCH KIT

Molded Celanese*
Plastic Handles

HOLLOW HANDLES HOLD INTERCHANGEABLE UNITS

The "Hallowell" Speed Tool Kits were designed to simplify and improve the equipment necessary to those who use a variety of bits or wrenches. They have swivel bit-chucks for better leverage and for reaching difficult places. The tools contained in the Socket Screw Kits and Socket Wrench Kits (they each come in two sizes), were carefully selected to give the most convenience to their users. Tool bits are made of *high-grade alloy steel*; the handles of famous durable *Celanese** plastic.

Socket Screw Kit #25, with swivel head drive, contains 8 tools: 6 hex bits: 1/16", 5/64", 3/32", 1/8", 5/32", 3/16"; #1 Phillips; 1 flat screw driver bit.

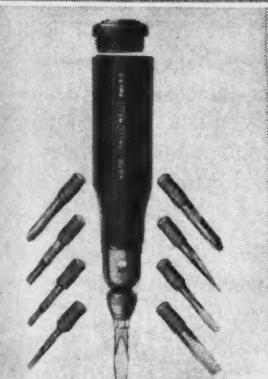
Socket Screw Kit #50, with swivel head drive, contains 9 tools: 6 hex bits: 1/8", 5/32", 3/16", 7/32", 1/4", 5/16"; #2 and #3 Phillips; 1 flat screw driver bit.

Socket Wrench Kit #75 contains: 2 (6 point hexagon) sockets with openings: 1/4" and 5/16", 3 (12 point hexagon) sockets with openings: 11/32", 3/8" and 7/16". With 1/4" square drive.

Socket Wrench Kit #100 contains: 6 (12 point hexagon) sockets with openings: 3/8", 7/16", 1/2", 9/16", 5/8", 3/4". With 3/8" square drive.

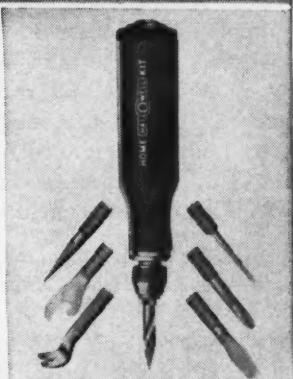
Obtainable at Suppliers throughout the country. If your Supplier does not carry these kits, send his name to us, along with yours, and you will be taken care of promptly.

These Kits are a grand idea for
holiday gifts or prizes.



AUTO KIT

Auto Kits (in two sizes) . . . contain small tools most necessary for auto maintenance. Phillips Bits, Clutch Head Bits, Flat Screw Driver and Tapered Reamer.



HOME KIT

Home Kit . . . contains flat screw drivers (1/16" and 1/4" wide), Phillips screw driver, square tapered reamer, gimlet, tack puller and bottle cap opener.

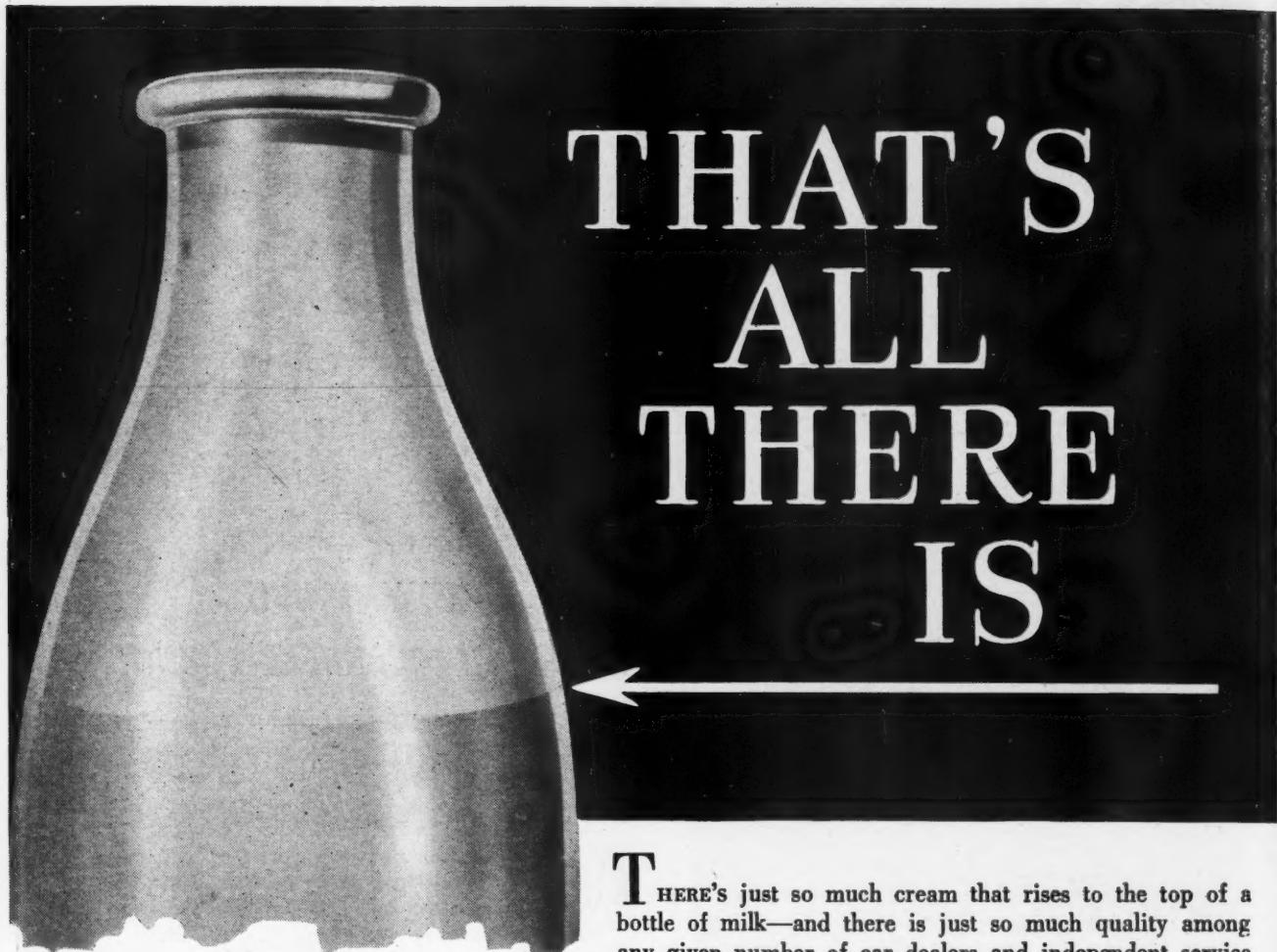
*Reg. U.S. Pat. Off.

Kits: Patents Pending

OVER 43 YEARS IN BUSINESS

STANDARD PRESSED STEEL CO.

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THAT'S ALL THERE IS

A
CHILTON
Publication



HERE's just so much cream that rises to the top of a bottle of milk—and there is just so much quality among any given number of car dealers and independent service stations. After that, there isn't any more.

That "cream" among automotive retail outlets is the goal of the Circulation Manager of MOTOR AGE—and he'll never stop trying until he can report: "That's all there is." Just how many real natural readers there are, we don't know, but MOTOR AGE wants only quality circulation, which it has and is rapidly increasing. And please never forget its 71.8% subscription renewal rate—with no arrears—which is high for its field.

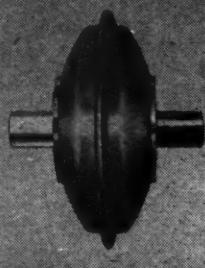
MOTOR AGE is the favorite magazine of the automotive retail trade—the place where your advertising will be read.

MOTOR AGE

Chestnut and 56th Streets
Philadelphia 39, Pa.

• • • First in Importance — Car Dealers and Independent Service Stations • • •

VACDRAULIC



**POWER
BRAKING**

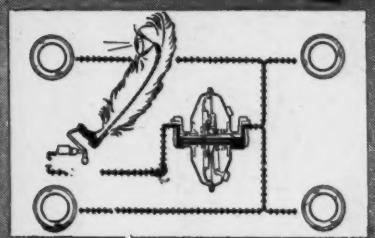
KELSEY-HAYES WHEEL CO.

Detroit 32, Mich.

Sold to Automotive Distributors by
EMPIRE ELECTRIC BRAKE CO.
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VACDRAULIC is a Trade Mark of
Empire Electric Brake Company

Write for the complete
Vacdralic catalog of
engineering and in-
stallation details today.



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AUTOMOTIVE
PRODUCTS

REPLACEMENT PARTS by HYGRADE

CARBURETOR AND FUEL PUMP
PARTS IN CONTAIN-ALL KITS
SHOCK ABSORBER PARTS
SPEEDOMETER CABLE, CASING,
TIPS AND SHAFTING
FUEL LINES AND FITTINGS

HYGRADE PRODUCTS CO., INC. • LONG ISLAND CITY 1, N. Y.

**ELIMINATE SANDING
and ELBOW GREASE**
Remove RUST Chemically
with METALPREP 79-V

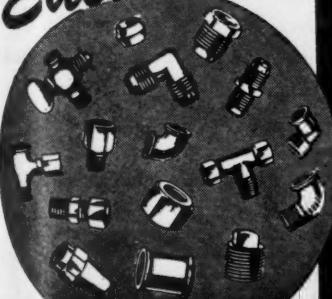


In preparing metal for paint, don't do it the hard way. Use the proven cleaner, METALPREP 79, on your refinishing jobs. It's easy, more effective and thorough. Simply BRUSH ON, STEEL-WOOL, SCRUB and WIPE OFF. PREWAR FORMULA.

Ask your jobber or write for Bulletin 44-S.
JOBBERS: Add profit with Metalprep.

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Edelmann



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and Precision
for Over 34 Years

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MID-WESTERN AUTO PARTS
KOKOMO INDIANA

WESTERN DISTRIBUTOR
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LOS ANGELES 15, CALIFORNIA

Why

EQUIP FOR NAIL-HOLE JOBS WHEN YOU CAN DO
UP TO 4" x 6" ... REPAIRS IN A SINGLE CURING

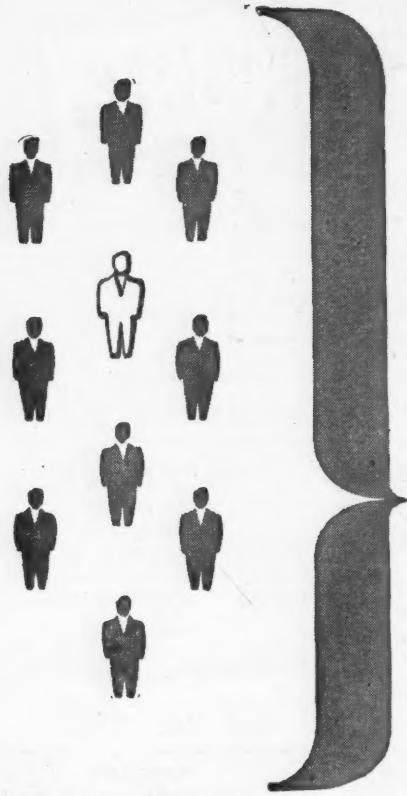
Plastomatic

The Modern Tube and Tire Unit
ROCKVILLE VULCANIZER EQUIPMENT CO., Inc.
Long Island City, N. Y.

**ALL SEASON
SELLER!**



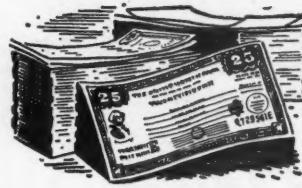
WITTIE
MFG. & SALES CO.
1414 S. Wabash Ave.
CHICAGO 5, ILL.



9 OUT OF 10 want THE PAYROLL SAVINGS PLAN CONTINUED!

Thanks to the cooperation and encouragement of America's industrial executives, 85 million bond holders have bought U.S. Bonds in the greatest savings program in history. Employees who have purchased billions of dollars of these bonds during the war now want to continue monthly purchases of savings bonds. Specific evidence of this desire to continue saving for personal security and prosperity through the Payroll Savings Plan was recently revealed by a survey which disclosed that 90% wanted the Plan continued.

Every employer can write in his own set of reasons why the Payroll Savings Plan should be continued as a part of his personnel relations program, but the principal advantages are obvious:



A large reservoir of national savings; a strong and stable bulwark against inflation.



An "automatic" thrift habit for the worker; to increase contentment and satisfaction in his job.



An opportunity for the employee to maintain his "share in America" with the safest, easiest, most profitable investment he can make.



An opportunity for the returned veteran to share in the Payroll Plan's varied benefits.

Your employees will require little "selling" on the idea—they are accustomed to their monthly saving habit. With the Treasury Department's savings bond program now in peacetime operation, your partnership is again invited to continue this systematic, convenient means of contribution to a prosperous peacetime future.

The Treasury Department acknowledges with appreciation the publication of this message

This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and Advertising Council

DON'T LET STRIPPED DRAIN PLUGS

GET YOUR GOAT!



Four sizes for most popular cars and trucks
using $\frac{1}{2}$ " to $\frac{3}{4}$ " Drain Plugs.

No. 949 Self-Threading Oversize Drain
Plugs for cars and trucks will solve your
problems.

This Plug provides a real efficient means of repair, and eliminates a costly labor job when threads are stripped. No drills or taps required; simply screw plug into position with socket or end wrench.

ORDER FROM
YOUR JOBBER



CHAMP-ITEMS, INC.

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No. 949A $\frac{1}{2}$ " O. S. List 30c each
No. 949B $\frac{5}{8}$ " O. S. 949C $\frac{11}{16}$ " O. S.
No. 949G $\frac{3}{4}$ " O. S. List 35c each.
No. 949K $\frac{7}{8}$ " O.S. List 45c each.

Profitable Welding
WITH EASY TO OPERATE
TRINDL Super
Industrial ARC WELDERS
DEPENDABLE EVERY TIME!



• Trindl Super Industrial Arc Welders are especially designed and constructed for low cost, high speed maintenance and production welding, where ease and speed of operation are essential.

• "Job-Tested" Trindl Welders—acclaimed for superior performance, ruggedness, dependability, and economical operation wherever used—are rolling up impressive production records.

• Trindl Arc Welders are the result of many years of careful engineering and "job-tested" research, and are manufactured in a range of distinctive sizes to accommodate every type of shop and production welding job.

• Step up production schedules twenty to forty percent—with an easy-to-operate TRINDL SUPER INDUSTRIAL ARC WELDER . . . also to save both time and money there are TRINDL welding supplies, accessories, and electrodes. Write, wire or . . . phone for full details.

TRINDL PRODUCTS, Ltd.
17 E. 23rd St. MA
CHICAGO 16, ILLINOIS



Not just an "armature lathe"

If you want to be set up to do real lathe work—work requiring more swing, collet capacity or bed length, than your present equipment can handle, now is the time to re-equip. Today, you will find a ready market among the home workshop enthusiasts for your old or too small lathes and you can dispose of your small "armature lathe" at a good figure. Then, by adding a few dollars, you can equip your shop with a modern, accurate and capable Sheldon Precision Lathe and have enough swing ($10\frac{1}{4}$, $11\frac{1}{4}$ or $12\frac{1}{4}$), with $\frac{3}{4}$ " or 1" collet capacity and sufficient bed length (26", 35" or 42" between center) to handle a wide range of real precision machining.

Write for Circular

SHELDON
SHELDON S-56 Lathe

$11\frac{1}{4}$ " swing, 35" between centers. Complete with 4-speed V-Belt Underneath Drive and Motor.

Also available with center distance of 24" and 48" (48" on pedestal base).



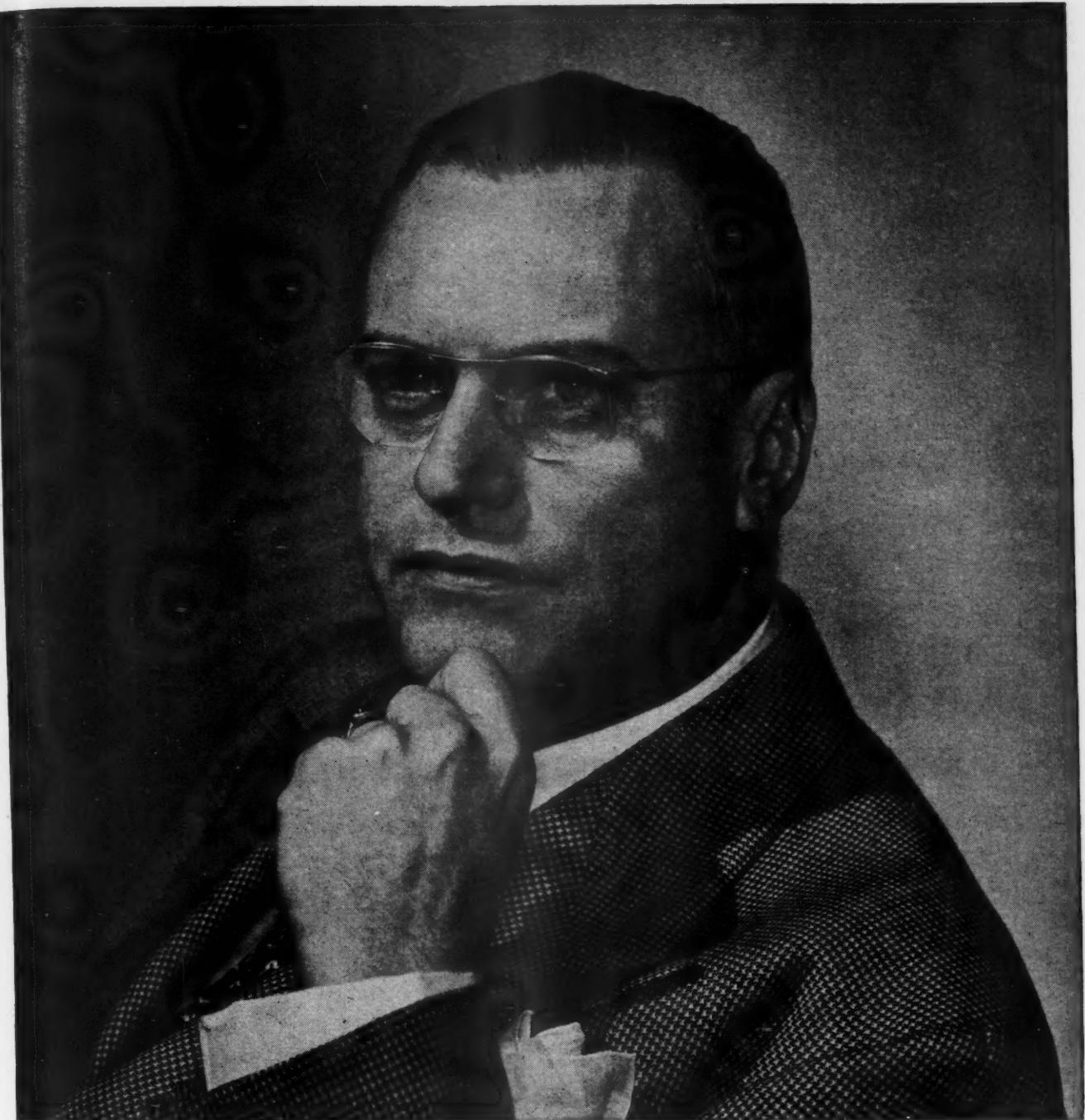
SHELDON MACHINE CO. Inc.

Manufacturers of Sheldon Precision Lathes • Arbor Presses • Vertical
Sheldon Vernon Horizontal Milling Machines • Vertical Milling Machines and Job Boxes • Shapers
4229 N. KNOX AVENUE • CHICAGO 41, ILLINOIS, U.S.A.

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"Ken" Brown—gives you his reasons

"Nobody ever looked forward to going into business for himself with more eagerness and enthusiasm than I did.

"My background included many years in automobile finance, more years as a traveling representative of one of the largest automobile manufacturers, and still more years as head of one of the largest distributor organizations in the country.

"When the time came to invest my own money in an automobile dealership, you may be sure I gave the subject utmost thought and study. My final decisions were, of course determined by my past experience and observation.

"Why did I choose Dodge?"

"My extensive travel had shown me the great strength and standing of the Dodge dealer organization everywhere.

"My sales and service experience made me appreciate the

exceptional quality and performance of Dodge cars and trucks over the years, and the extreme loyalty of their owners.

"My intensive management work with all kinds of dealers had impressed upon me the unique character and value of the Dodge dealer agreement, embracing as it does both Dodge and Plymouth cars and Dodge Job-Rated trucks.

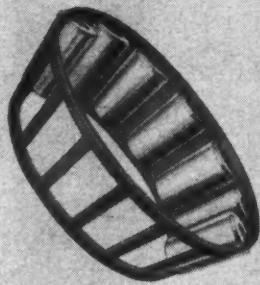
"All these things added up to my decision to join Dodge. My six months as a new member of the Dodge dealer family has satisfied me that my decision was right."

• • •

DODGE • PLYMOUTH • DODGE Job-Rated TRUCKS

DODGE—DIVISION OF CHRYSLER CORPORATION
7900 JOS. CAMPBELL, DETROIT 11, MICH.

Do you know the Correct Answers?



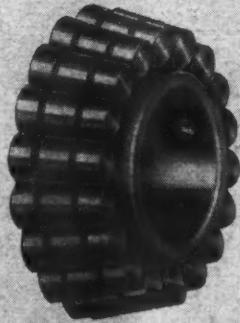
I What is the purpose of the cage in a Timken Bearing?

- 1. It aligns the rollers.
- 2. It saves weight.
- 3. It retains the rolls about the cone and keeps them properly separated.



II If the cage does not align the rollers why is it that they roll true about the cone?

- 1. The taper of the roll keeps them from getting out of line.
- 2. The speed at which they travel is the governing factor.
- 3. A wide area of contact between the large end of the roller and the rib of the cone keeps them in line.



III Why does not the Timken Bearing use a full complement of rollers?

- 1. It is cheaper to use a cage.
- 2. It is too noisy.
- 3. There is too much friction in a bearing using a full set of rollers.

The trade-mark "TIMKEN" on every bearing is your assurance of quality. Look for it. It is placed there for your protection.

ANSWERS

I The sole purpose of the cage is to retain the rollers, properly spaced, about the cone.

II A wide area on the large end of the roller contacts the rib of the cone. This keeps the rollers positively aligned under all loads.

III The original Timken Bearing, made nearly fifty years ago, contained a full set of rollers. It was found that the rollers rubbing against each other generated heat and that a cage, to keep them separated, was essential.

THE TIMKEN ROLLER BEARING COMPANY, CANTON 6, OHIO

Spiro-Seal's Unique ALTERNATING ACTION...



Another reason why Ramco 10-Up is the **ALL PURPOSE RING**

No matter if it is a re-bore or a re-ring job, those cylinders need the Alternating Action of Spiro-Seal. Alternating Action guarantees a longer lasting job, because its action is an aid to the prevention of cylinder wall taper in both re-ring and re-bore jobs.

Alternating Action is just one of many reasons why you "Do the Job Right" when you Re-Power with Ramco 10-Up...the All Purpose Rings that are right for every job...re-bore or re-ring.

Ramsey Corporation, 3718 Forest Park Blvd., St. Louis, Mo. Factories: St. Louis, Fruitport, Mich., Toronto, Can.

RAMCO 10 UP RE-POWER Ring
BEST FOR EVERY JOB—RE-BORE or RE-RING—PROVEN BY 10,000 MILE RING AND LABOR WARRANTY

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ENGINEERED TO

Match Any Job

There are hundreds of A-H combinations specifically engineered for the replacement field, for every engine condition! That's why American Hammered jobbers can supply the one right set for any degree of wear in any model of any make of engine.

Those to whom efficient engine performance is the only measure of piston ring value, rate American Hammered the "ring leader". They rely on A-H rings in every size . . . of every type . . . for every purpose. They know that A-H sets match any job.

Koppers Company, Inc., American Hammered Piston Ring Division, Baltimore, Maryland

American Hammered

American
Hammered
Piston Rings

STEEL-EDGE SET

SET NO.

107

This Set Consists of

- 8 - 3 $\frac{1}{2}$ x $\frac{3}{16}$ Deep Comp.
- 8 - 3 $\frac{1}{2}$ x $\frac{3}{16}$ Flex. Power
- 8 - 3 $\frac{1}{2}$ x $\frac{3}{16}$ OilCutter
- 8 - 3 $\frac{1}{2}$ x $\frac{3}{16}$ Steel-Edge

A-H multiple-piece
Steel-Edge Ring Set

American Hammered Piston Rings

A KOPPERS PRODUCT